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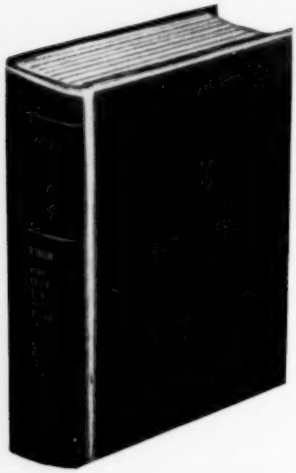

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Medical Education Forum includes editorials, letters, comments, criticisms, and excerpts from important addresses.

News from the Medical Schools: Material for this section should be transmitted to the News Editor, Mr. Tom Coleman, 2530 Ridge Avenue, Evanston, Illinois. Announcements of major faculty and administrative appointments, news of distinguished visitors and significant educational developments will be included. It is not possible to publish notices on grants-in-aid for scientific research.

Items of Current Interest: Audio-visual news and notices from national and federal agencies appear in this section.

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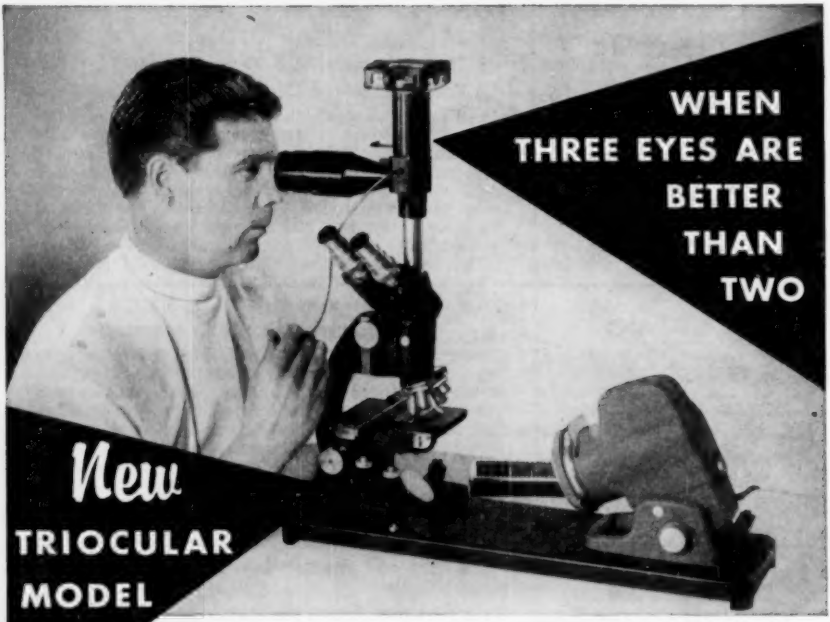

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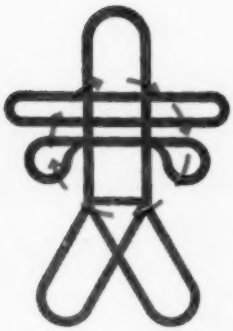

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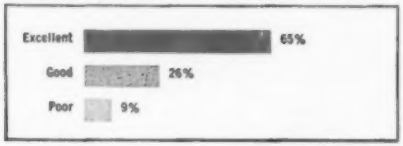

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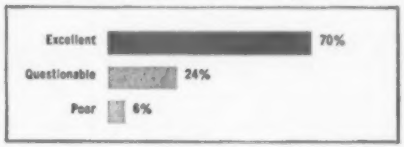

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World Conference on Medical Education, Palmer House, Chicago, Ill., U.S.A., Aug. 30–Sept. 4. For information address: Dr. Louis H. Bauer, 10 Columbus Circle, New York 19, N.Y., U.S.A.

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AMERICAN SOCIETY OF FACIAL PLASTIC SURGERY, New York City, July 17. Dr. Samuel M. Bloom, 123 E. 83rd St., New York 28, Secretary.

AUGUST

AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION, Hotel Leamington, Minneapolis, Aug. 30–Sept. 4. Miss Dorothea C. Augustin, 30 N. Michigan Ave., Chicago 2, Executive Secretary.

AMERICAN HOSPITAL ASSOCIATION, Statler Hotel, New York City, Aug. 24–27. Dr. Edwin L. Crosby, 18 E. Division St., Chicago, Director and Secretary.

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SEPTEMBER

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AMERICAN COLLEGE OF GASTROENTEROLOGY, Biltmore Hotel, Los Angeles, Sept. 19–26. Mr. Daniel Weiss, 33 W. 60th St., New York 23, N.Y., Executive Director.

AMERICAN COLLEGE OF SURGEONS, The Traymore Hotel, Atlantic City, N.J., Sept. 28–Oct. 2. Dr. Paul R. Hawley, 40 E. Erie St., Chicago 11, Director.

AMERICAN ROENTGEN RAY SOCIETY, The Netherland Hilton Hotel, Cincinnati, September 22–25. Dr. C. Allen Good, Mayo Clinic, Rochester, Minn., Secretary.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, The Palmer House, Chicago, Sept. 7–11. Mr. Claude E. Wells, 2052 N. Orleans, Chicago 14, Executive Secretary.

CENTRAL ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, Drake Hotel, Chicago, Sept. 24–26. Dr. Edwin J. DeCosta, 104 S. Michigan Ave., Chicago 3, Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, The Palmer House, Chicago, Sept. 6. Dr. Arthur H. Dearing, Suite 2115, Prudential Plaza, Chicago 1, Executive Director.

MEDICAL PROGRESS ASSEMBLY, Tutwiler Hotel, Birmingham, Ala., Sept. 13–15. Dr. Herbert H. Thomas, 920 S. 19th St., Birmingham, Ala., Chairman, Publicity Committee.

MID-CONTINENT PSYCHIATRIC ASSOCIATION, Holiday Inn Motor Hotel, St. Louis County, Mo., Sept. 18–20. Dr. W. Payton Kolb, Baptist Medical Arts Bldg., Little Rock, Ark., Secretary.

NORTH AMERICAN FEDERATION, INTERNATIONAL COLLEGE OF SURGEONS, Chicago, Sept. 13–17. For information write the Secretariat, 1516 Lake Shore Dr., Chicago 10.

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AMERICAN PUBLIC HEALTH ASSOCIATION, Convention Hall, Atlantic City, N.J., Oct. 19–23. Dr. Berwyn F. Mattison, 1790 Broadway, New York 19, N.Y., Executive Director.

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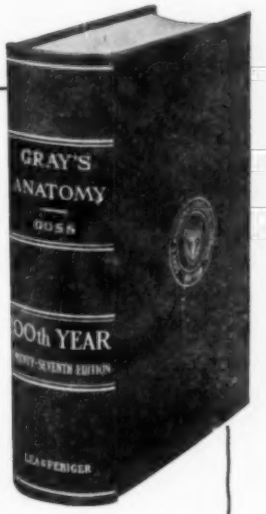

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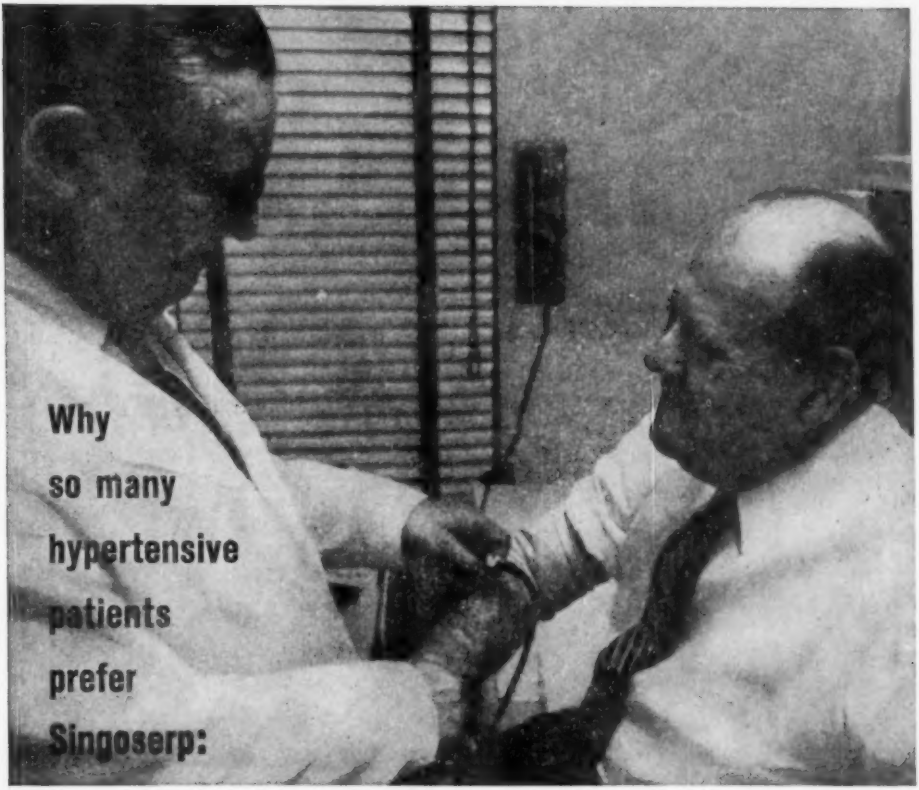

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*Herrmann, G. R., Vogelpohl, E. B., Hejtmancik, M. R., and Wright, J. C.: J.A.M.A. 169:1609 (April 4) 1959.

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1. Case reports on file, Wyeth Laboratories. 2. Parks, R.V., and Moessner, G.F.: Dual Approach to Patient Care, Scientific Exhibit, A.A.G.P., April, 1959.

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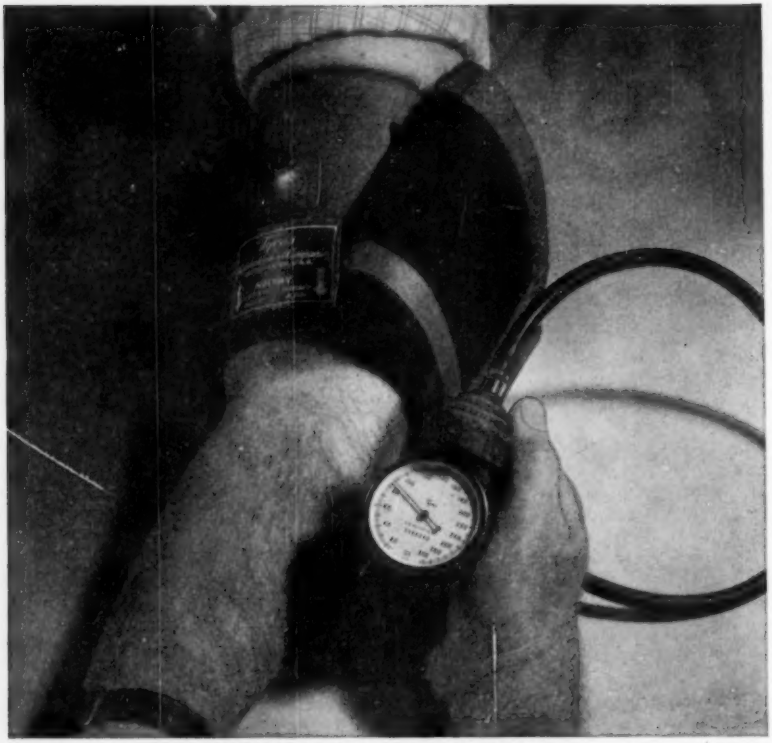

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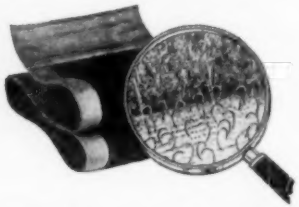

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The Journal of MEDICAL EDUCATION

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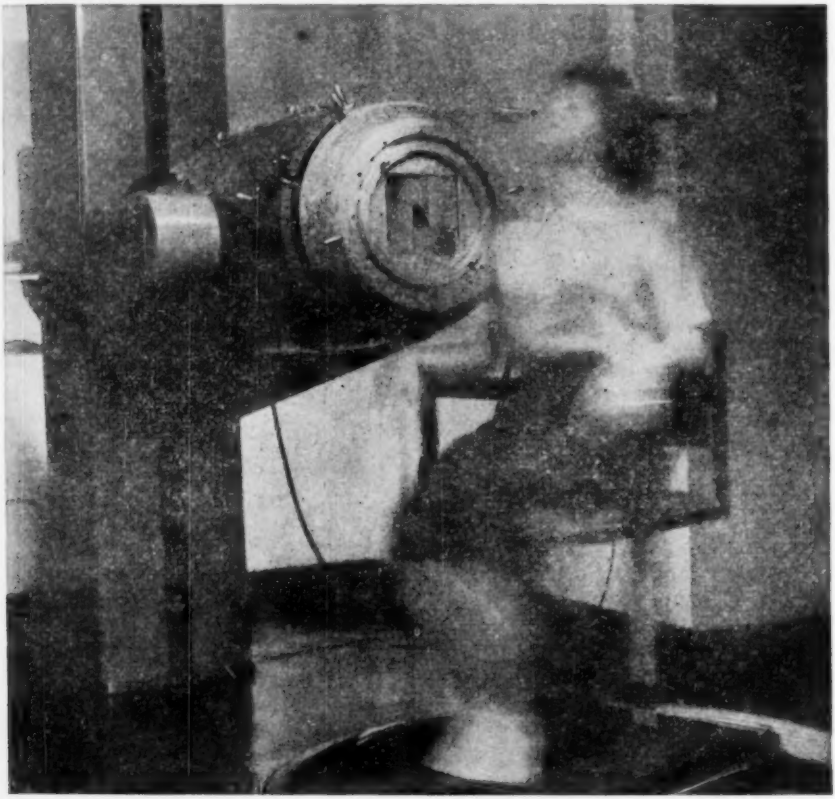

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Studies and Research in Medical Education
Their Timeliness and Importance

WARD DARLEY, M.D.*

Association of American Medical Colleges, Evanston, Illinois

A year and a half ago I stated that as I interpreted my mission with the Association of American Medical Colleges, I felt I was engaged in helping to provide continuing leadership to an enterprise that involves bringing our medical colleges together in a coordinated educational effort. I stated that if education is to be fundamental to this enterprise, we must look to the substance and to the means of a program of communication and that if this effort is to be crowned with success, we must have accurate facts and information, translated into terms that can be adjusted to the communication media we are using and the audiences we are trying to reach (3). Events of the recent past and the immediate present emphasize the importance of our getting on with this task.

In reviewing the most significant of these events, I will begin with the fall of 1956, when this Association adopted a statement to the effect that if this nation is to have enough physicians to meet future need, the time has come for the strengthening and expansion of our programs in medical education (5). In 1957, 1 year later, the Association adopted another statement pointing out that one way to do this would be to establish new programs offering the first 2 years of the medical course (8); and in 1958, still another year later, the House of Delegates of the American Medical Association adopted a recommendation of its Council on Medical Education and Hospitals which places the A.M.A. and the A.A.M.C. in agreement with the essence of these two statements (9). To the end that this agreement may be made as meaningful as possible, a committee, representative of university presidents, the A.A.M.C. Executive Council and the A.M.A. Board of Trustees and Council on Medical Education and Hospitals, has held one meeting at which it discussed the particular areas in medical education that are of mutual concern and that might receive joint consideration. Other such meetings will be held.

In the meantime, other events have been taking place which may also have a significant impact upon medical education.

The Final Report of the Secretary's Consultants on Medical Research and Education, now commonly referred to as the "Bayne-Jones Report," was released by the Secretary of the Department of Health, Education, and Welfare on June 27, 1958. Among other things, this report recommended that by 1970 the national expenditure for medical research should be tripled, the number of scientists engaged in medical research should be more than doubled, and fourteen to twenty new medical schools should be developed—all of this through a program in which the Federal Government would play an active part (7).

Also, the National Institutes of Health, using a sample of twenty medical schools, has taken the first step in initiating a study of the impact of its 10-year grant program upon medical education. Because of the millions of dollars involved, there can be no doubt that this program has had an impact. A brief report of this study will appear in a

* Executive Director, Association of American Medical Colleges.

forthcoming issue of the *Journal of Medical Education* (6). A detailed and longer report will also be published by the National Institutes of Health. It is ultimately planned to extend or repeat this study to include all schools.

Finally, the Surgeon General of the U.S.P.H.S., following through with his address of 1958 before the American College of Surgeons (1), has appointed a "Committee of Consultants on Medical Education," which is to review the entire field of medical education and render a report within the next few months.

Each of the above studies, like the Bayne-Jones Report, will undoubtedly bring forth recommendations that will have significance for the future of medical education. Both the Surgeon General and the Director of the National Institutes of Health have accepted invitations to speak at the 1959 Annual Meeting of the Association.

Because of this growing interest and concern for medical education and because such interest and concern are long overdue, I believe it to be imperative that medical educators attain a position from which they can play their part in guiding any momentum that may result. We must be able to keep any planning and action that affect our schools of medicine within reasonable balance and bounds—balance and bounds as to education versus research and medical service and balance and bounds as to education for quality versus education for quantity.

As it may align itself with or have occasion to oppose powerful organized interests in our society, the Association of American Medical Colleges finds itself in a position of great responsibility—a position that is charged with opportunity and also with difficulty. If our medical educators are to be effective in this situation, the importance of the substance of communication—the facts and information to help with decisions as to where change is needed and as to how change should be directed—at once becomes apparent.

The studies and research that are needed embrace two broad areas: one, activity that involves the seeking and dissemination of the information needed for the improved understanding, administration, and financing of the facilities, faculties, and student bodies which our system of medical education must have if it is to be strengthened and extended to meet present and future needs in a manner that will make for maximum efficiency and effectiveness; and the other, research aimed at investigating behavioral measurement as it may lead toward the development of (*a*) more useful tools in the selection and admission of students to medical school, (*b*) better methods for the evaluation of medical student accomplishment, (*c*) better understanding of the importance of psychological and environmental factors in the education of the physician, and (*d*) knowledge that will make for more deliberate and intelligent counseling throughout all levels of medical education.

The first of the above areas of activity we have designated as operational studies. A very aggressive approach to this program has been made possible by three grants from the W. K. Kellogg Foundation. Two grants were made over a year ago: one of $75,000 for a pilot study of the internship in medical school-affiliated hospitals and the other for $35,000 for the development of a program that will permit the periodic reporting of medical college costs; and now an institutional grant of $500,000 which will support an over-all study program for a 5-year period—an essential if we are to proceed upon a stable and well planned basis.

The second type of activity we call basic research. This is a type of research in which judgment is constantly being challenged by the concepts of variability versus those of precision; and, as a consequence, the large amounts of data that are collected from year to year must be recorded, analyzed, and compared with the greatest of care—continuity and consistency in direction are of the first importance. While the Markle Foundation and the Commonwealth Fund have helped finance this program to its present level, the increased stability essential to its planning and execution has now

been helped immeasurably by a new grant from the Commonwealth Fund of $150,000 which can be applied over a 3-year period.

Finally, it is well known that since their inception, the Teaching Institutes have enjoyed the joint support of the Commonwealth Fund and the National Institutes of Health. A new grant of $50,000 from the Commonwealth Fund and the continued support of the National Institutes of Health at the rate of from $25,000 to $35,000 per year now assures adequate financing of the Institutes for 1959 and 1960. The Teaching Institutes have always depended upon the results of surveys and questionnaires as grist for their mill. Now that we can make both professional and technical additions to our staff, we will be able to collate and analyze much data that have heretofore gone unused, as well as to proceed with new investigations which future Institutes will require. This will be of importance to both operational studies and basic research.

Now what all of this means is that for the first time the Association can look at its long-range study and research programs with a reasonable degree of security. As it does this, the entire panorama of all the components of medical education immediately presents itself. We see the student, student bodies, faculties and facilities, and the administrative and financial support upon which their proper function and relationship depend. Space will limit me to but a brief discussion of each of these areas.

Students and student bodies.—For many years the Association has been doing basic research in the area of student aptitudes and achievement. During the past 2 years this research has grown in breadth and depth, so that we can now define specific groups of projects.

The first of these consists of group-administered tests and their possible use in the prediction of achievement in terms of grades and scores; the correlation of test performance with the ratings of faculty and peers; the response of interests, attitudes, and values to educational experiments and innovations; and the understanding of career selection, patterns, and performance. The second represents a study of diversity as it pertains to the characteristics of medical students and medical schools and the correlation of these characteristics as between individual schools and schools classified according to other breakdowns such as geographical region, type of control, restrictions on enrollment, costs of operation, etc.

Other basic research projects are concerned with theoretical and methodological problems in the area of psychological measurement. Although these projects lie too deeply within the basic science disciplines to warrant their outline in this short report, we may rest assured that they will ultimately result in an immeasurable increase in our understanding of the phenomena of medical learning and teaching.

In the meantime, other studies pertaining to students that are more operational in nature need to be done, particularly those that can elucidate the financial and other problems that confront students studying or planning to study medicine or that prevent or discourage young people from planning such study.

Faculty.—We need to develop continuing studies of the structure and function of our faculties. The maintenance of a faculty registry will be basic to this. We know that there are over 40,000 names upon our national faculty list, but we have no knowledge as to the origins and backgrounds of these individuals, how they are distributed as to full-time, part-time, or volunteer status or as to disciplines or teaching areas. It is important to the moment, for purposes of both local and national planning, that we learn of the military obligation status of each of our faculty. From the long-range standpoint, however, it is time for us to establish a national profile of the structure and function of our faculties so that we can appreciate trends against which our schools, both individually and collectively, can compare themselves and as a consequence be in a position to appreciate change and then, if necessary, plan for change. We are fortunate here in that, as a point of reference, we can

turn to the 1952 studies of staffing patterns in 4-year schools by Diehl, West, and Barclay (4).

Facilities.—If student and faculty are to do their work, they must have a place in which to work. As far as effective space is concerned, many schools, both from the standpoint of crowding and obsolescence, are at a distinct disadvantage. In order that the total construction picture may be appreciated, we are conducting a study that will review the entire situation as it has developed over the past 10 years and the needs for remodeling and construction as they presently exist. This will be particularly pertinent to any success we may have in securing construction funds from the next Congress and also to any planning that will provide for expansion to accommodate the expanding enrollments which this nation's future need for physicians will demand.

Academic deficits.—While I am speaking of the need for studies that have to do with faculties and facilities, another point must be emphasized. That additional faculty is presently needed is apparent from data that show a steady increase in the number of budgeted faculty vacancies. These data must be kept up to date and their significance kept under frequent review. The most important thing that is needed, however, is an index that will permit us to assess our faculty and facility needs as between the way medicine is presently taught and the way it should be taught. It is generally known that serious gaps exist in most of our teaching programs. In addition to assessing the faculty and construction needed to fill these gaps and so that highly educated and expensive professional personnel do not waste time and effort in work that clerical and technical staff should do, it is important to determine the number of such supporting personnel that is needed now and which also will be required if our faculties are to be augmented as they should. As we may plan ahead for expanded and new educational programs in medicine, this should be done in terms of what is needed rather than in terms of present inadequacies.

Administration and financing.—The most important single problem in medical education is in the area of its administration and financing. Mr. A. J. Carroll's report "A Study of Medical College Costs" (2) has set the stage for an approach to this problem area, and the project currently being financed by the W. K. Kellogg Foundation will result in tested definitions, procedures, check lists, and forms that will permit the first across-the-board study of medical college program costs. It is planned that funds from the new grant will support this first across-the-board effort and also repeat studies in successive years.

Since a modern medical college stands at the center of a very complex combination of educational, research, and service operations and since each of these operations involves cost and income factors that overlap between the medical college, its clinics and hospitals, and its parent university, any study of costs, particularly if comparison between colleges is to be meaningful, must involve a careful analysis of the facts that explain the costs. In turn, there are many instances whereby these "facts that explain the costs" can become important per se to an understanding of many administrative and organizational problems in medical education.

A good example of this concerns the composition of a faculty and the manner in which this faculty distributes its time and energy over the many activities a medical school program embraces. Knowledge of the composition of faculty as between full-time and part-time and as between basic and clinical science and of the distribution of faculty time and energy as between teaching, research, and service not only provides the facts that can help explain the costs, but also makes possible, either standing alone or in combination with other facts, the development of yardsticks other than costs against which medical schools can profitably compare themselves or by which standards for the development of new schools can be established.

Another problem area that is intimately related to the financial, administrative, and organizational problems of medical educa-

tion, but also that is important in its own right, is the medical service plan which every medical school must operate if it is to have the "laboratory" in which to do clinical teaching and research. No two plans are or should be necessarily alike. Because of this the general situation is very little understood. It is important that every interest that has reason to become involved in these medical care plans come to some agreement as to the purpose these plans must serve and the manner in which these purposes can be satisfied. It is from these standpoints that a study of medical service plans should be conducted.

A study of medical service plans will also require an analysis of the administrative relationships between medical schools, their parent universities or governing boards, and their affiliated teaching hospitals. This is something that very few medical schools, if any, have developed in a manner that is completely satisfactory. Here again, the points of satisfaction and the absence of satisfaction need to be identified, and in the process it is to be hoped that administrative and organizational patterns can be worked out that will augment the stability that is badly needed in this area. Perhaps we need to develop a statement of essentials in the area of hospital-medical school affiliation.

We should hope that one outcome of our program of cost and income analysis will be the identification of sources from which earned income can be increased and also of new sources of income. The justification of increased income from patient care and that of research are two examples which immediately come to mind. Alumni giving as a significant source of continuing income is something that few schools have developed to a very great degree. A study is currently under way that may make it possible to show what can be done in this area and how.

From the above review it should be apparent that service to individual medical schools, as well as to the general area of medical education, is implicit in the study program that the Association is developing. With the nation on the threshold of strengthening and expanding its system of medical education, the mass news media, voluntary and governmental health and welfare agencies, state legislature, the National Congress, business and professional groups, as well as the medical schools themselves, are asking questions. Answers to these questions frequently do not exist, are buried in the literature, exist as raw data in the files of the A.A.M.C., the A.M.A., or other agencies or are in the process of elucidation through investigations being carried out by the A.A.M.C. or others.

In this connection we must adhere to the importance of continuing to join with the A.M.A. Council on Medical Education and Hospitals in the development and distribution of the annual joint questionnaire. Here again, as with the information gathered in the interests of the Teaching Institutes, we contribute to the accumulation of information that is of importance to both our operational studies and basic research.

In other words, what I am attempting to clarify is the proposition that the Association become a center in and around which information pertaining to medical education can concentrate. If this is to happen and if in the process we are to avoid wasteful duplication of effort, it is important that the Association staff and membership be aware of all studies and information-gathering that are in process, regardless of where. Therefore, in addition to studies done on its own, it is important that the Association be in a position to provide active cooperation in investigations for which it may not have the primary responsibility and to evaluate and profit from or follow-up studies that may be done completely independent of its influence. Information important to medical education should be placed before medical educators as promptly as possible, irrespective of its origin.

The studies in process and those being proposed will be useful in many ways. In the first place, they must be reported in such a way as not to embarrass any one school and yet in a way that will permit a given school to see its own relative position in the national picture and also to ask for selective breakdowns of the national data so that it can

more intelligently plan, develop, and evaluate individual programs of its own. Thus, instead of the study and reporting effort being used to encourage uniformity and standardization, it can make for the individualization of high standards. Finally, the studies must be such that they can stand in the literature as the bench marks necessary to the appreciation of future trends and change and, hence, to a sense of direction that will permit the maintenance of excellence, efficiency, and balance which planning for the future expansion of our system of medical education will require.

I think it is of the first importance that the medical schools, both individually and collectively, do all these things for themselves. If the schools do not do this, it will be done for them, and this very possibly under circumstances that will be highly unsatisfactory to those who must take the primary responsibility for conducting programs in higher education. Even though studies of medical education by an outside agency may reflect an effort to supply badly needed information, such effort is always geared to serve the purposes of the agency concerned and the raw data, usually gathered by a staff with no first-hand appreciation of medical education, is collated, organized, and reported accordingly. Furthermore, experience has shown that, as different agencies investigate the same things, medical schools must contend with duplication of effort, each effort involving differing definitions, check lists, and report forms. As a consequence, confusion arises when an attempt is made to use the resulting data and reports for purposes of comparison or for past points of reference.

The only answer to all this is that the medical schools, through the Association of American Medical Colleges, develop a study and service program of their own that is sufficiently objective and comprehensive and sufficiently capable of periodic revision and application to satisfy all the needs for information about medical schools and medical education. This should obviate needless duplication of effort and confusion and at the same time improve the sense of direction for all the elements in our society that have a legitimate interest in medical education.

Now I realize that from the standpoint of the individual medical school, there are many instances where the lack of staff will make cooperation with our study program extremely difficult. I assure you that we will bear this fact in mind as we plan our work. Questionnaires will be carefully constructed and pre-tested, and complicated studies will be grouped so that if necessary, their development can be facilitated by regional meetings or actual school visitations. Whenever possible, studies will be limited to samples; but in most instances, since the schools will want their own information for themselves, the procedure will need to go across-the-board. At any rate, I hope that, even at the expense of hardship, all schools will find it possible to participate. I believe that the results will justify the effort.

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A Pioneer California Surgeon and Medical Educator
Elias Samuel Cooper*

KELD J. REYNOLDS, PH.D.†
College of Medical Evangelists, Los Angeles, Calif.

Elias Samuel Cooper, physician and surgeon, scientist, citizen, has a number of notable "firsts" to his credit in the annals of medicine in the West. He organized the Medico-Chirurgical Society of San Francisco. He was the prime mover in the establishment of the California State Medical Society. He founded and edited, in its early years, the *San Francisco Medical Press*, a pioneer professional journal of considerable merit. He organized in San Francisco the first medical faculty on the West Coast. He was a fearless surgeon of great originality and skill, a man of peculiar genius, about whom it was difficult for his contemporaries to be neutral. Among his *confrères* in high places were bitter enemies and devoted friends, both classes with ready pens and an urge to publish.[1]

Elias S. Cooper was born in 1822 near Somerville, Butler County, Ohio. His Quaker family must have been above the ordinary. An older brother was a physician in Galesburg, Illinois. A younger brother became Professor of Greek and Hebrew at Rutgers. An older sister had nine children, all of whom had Cooper for their middle name. Among the nine was Levi Cooper Lane, a devoted disciple of his uncle, and destined to have a distinguished career in medicine and medical education in his own right in California.

ELIAS S. COOPER, PORTRAIT PAINTED AFTER HIS DEATH BY BROOK

Elias Cooper began the study of medicine at the age of 16 under the direction of his older brother. The teenager attended medical lectures at Cincinnati, Ohio. Not content with the formal instruction he received,

* This is the ninth in the current series of biographies of eminent medical educators.

† Vice-President for Academic Affairs, College of Medical Evangelists, Loma Linda and Los Angeles, California.

[1] The chief source of biographical details is the 1862 editorial in the *San Francisco Medical Press*, Vol. III, No. XII (October, 1862), pp. 226–243, written immediately following the death of Doctor Cooper by his nephew, Levi C. Lane, M.D. Other details are from Emmet Rixford, M.D., in the presidential address before the American Surgical Association in 1928, reported in the *Annals of Surgery*, Vol. LXXXVIII, No. 3 (September, 1928), pp. 321–332.

he set up an extracurriculum for himself consisting of a course of vivisections, where he began to lay the foundations of a career in surgery, and where he first exhibited an interest in scientific medicine. Since he was too young to receive the usual collegiate honors at the completion of his first course of study, this recognition came in 1840 with a degree from St. Louis University, when he was 18 years of age, and another degree in 1849.

Doctor Cooper began the practice of medicine when he was 19, at Danville, Illinois. Soon after coming to Danville he was called upon to perform a surgical operation, in which he exsected a large portion of the lower jaw. The boldness of the operation, and its success, drew the attention of the profession, and the fame of the young doctor brought patients to his door. During the summer months the proceeds of the Danville practice amounted to almost $800 per month, an enormous income from a Western country practice in those days.

The year 1844 marked the beginning of a new period in Doctor Cooper's life. He moved to Peoria, Illinois, which then gave promise of becoming one of the leading cities of the middle border. For the first 3 years in Peoria he gave little attention to the practice of medicine, but devoted himself almost completely to its study, and particularly to surgery, which he had chosen as his specialty. He opened a dissecting room, gathered a class of students around him—some of whom were local physicians—to whom he delivered lectures on anatomy, with demonstrations on the cadaver. Here Levi C. Lane joined him to study medicine, and a bond like that of father and son developed between the bachelor uncle and his nephew. Of this period Doctor Lane has left the following description:

> During this time, I am able to bear witness, that, in no case, have I ever seen such devotion as a student. Day, as well as the greater portion of the night, one might ever find him within his study, or analyzing the textures of the cadaver. When fatigued from the confinement of study, his habit was to rise up, and pace the room for some moments, and sing with great vivacity some lively song;—the happy energy which pervaded his manner at such times, showed that his ardent genius was constantly feasting upon the inspirations which were furnished by his studies and researches. At this time, he usually retired between three and four in the morning, and rose between seven and eight, apparently as much refreshed as those who spend the whole night in sleep. The motto which he had inscribed on the wall, at his bedside, was that of the old Greek painter Appelles—*Nulla dies sine linea.*[2]

The zeal of the doctor in pursuit of anatomical knowledge and surgical skill brought him into conflict with the prejudices of his time against dissection of the human cadaver and vivisection of animals. As if the dangers and discomforts of dissecting a decomposing cadaver were not enough, the hue and cry of the populace was added. Bodies were generally surreptitiously obtained, since enlightened legal measures were lacking. Medical students were sometimes required to provide their own cadavers, with no questions asked as to where they obtained them. Now, at the instigation of the enemies of Doctor Cooper, the press began to ask where the doctor got the bodies on which he and his students worked in the dissecting room with the rows of skeletons along the walls. A public demonstration was touched off when the authorities handed over for the advancement of science the bodies of two murderers, victims of the first executions in Knox County. Posters were displayed throughout the city with the title "Rally to the Rescue of the Graves of Your Friends," and calling for a mass meeting of the citizenry. Nothing daunted, the doctor attended the meeting, accompanied by several of his friends. These managed to get one of their number elected chairman, an Irishman of great wit who was not known to the public as a "Cooperite," and soon the meeting was dissolved in a gale of laughter.

The doctor's enemies then resorted to legal action, and for a period of 3 years

[2] "The Editor's Table," *The San Francisco Medical Press*, Vol. III, No. XII (October, 1862), p. 229.

prosecution followed prosecution. This experience failed to drive the doctor out of town, failed to dampen his enthusiasm for scientific medicine, and appeared to leave him without scars of bitterness, so that later, when his fellow practitioners had become more friendly, he received them cordially.

Doctor Cooper built the first hospital in Peoria, a three-story brick building which the children of the neighborhood called "The Spook House." He established an infirmary for the treatment of diseases of the eye and ear, and the correction of deformities of the lower extremities, especially club foot. His reputation as an orthopedic surgeon extended into the nearby states of Indiana, Kentucky, and Iowa, and his practice became extensive and lucrative.

Meanwhile, he was establishing himself with his professional *confrères*. He was one of the 29 charter members of the Illinois State Medical Society, organized in Springfield in 1850 at a medical convention called for that purpose. In 1852 he was vice-president of the Illinois State Medical Society, and in 1853 he was president of the Knox County Medical Society.

Doctor Cooper is generally credited with being the first surgeon to use chloroform in anesthesia in the Mississippi Valley. From Europe he brought a quantity of chloroform, and in 1851 he reported on its use in 79 surgical operations at the Illinois State Medical Society meeting.[3]

In the *Transactions* of the second annual meeting of the state society, 1852, Doctor Cooper had three papers: "Collodion in Entropium," "A New Instrument for Cauterizing the Urethra," "Treatment of Incomplete Anchylosis of the Kneejoint."[4] At the meeting Doctor Cooper proposed his nephew Doctor Levi Lane for membership. Lane had a paper published in this number of the *Transactions:* "Transforming Lacerated and Contused into Incised Wounds."[5]

A combination of poor health, discontent with an extensive practice which, while it was lucrative, took more and more of his time and energies and kept him from research and teaching, and a growing ambition to teach in a medical college, preferably one he had a part in founding, led to the decision in 1854 by the 32-year-old Doctor Cooper to uproot himself from Peoria and go West. In preparation he spent nearly a year in Europe becoming acquainted with many of the eminent medical luminaries of Edinburgh, London, and Paris, and observing their work. He sailed from the East Coast with the intention of going to Portland, Oregon, but on the steamer he met Captain James M. McDonald, who persuaded him to leave the ship at San Francisco, and in San Francisco he remained. It was "Captain Jim" who gave to Cooper College the land on which Lane Hospital stands, as well as a substantial sum of money; but this was 30 years after the death of Doctor Cooper.

These were the circumstances that shaped the man, and this was the man who in 1855 landed in San Francisco, with 7 years of life remaining to him, 7 years in which he left his mark on California medicine and medical education.

San Francisco in the 1850's was a new world to the traveler from the Midwest, and more recently from Edinburgh, London, and Paris. The city had a polyglot population of some 50,000 people, still unstable, as was demonstrated by the Fraser River gold rush in 1858 and by the extravaganza of its daily life.

The 5-year-old state of California was beset with political corruption, and the public debt was rising with alarming rapidity. The state governor, conscious of the venality around him, scolded the legislature and his officials but, rather than lose his office, yielded himself to schemes as corrupt as any.

San Francisco in 1855 was in the midst of a financial panic. The fires of 1850–1854

[3] Emmet Rixford, "Early History of Medical Education in California." Transactions of the American Surgical Association, *Annals of Surgery*, Vol. LXXXVIII, No. 3 (September, 1928), p. 323.

[4] Illinois State Medical Society, Second Annual Meeting, *Transactions*, 1852, Appendices B, C, D, pp. 31–43.

[5] *Ibid.*, p. 4, and Appendix E, pp. 45–46.

had destroyed large sections of the canvas and packing-box community, but, in spite of the disorderly state of affairs, a phoenix city of granite and brick was rising out of the ashes and mud, the stone brought from China as ballast, and the brick from New York and Australia. The city was under weak or corrupt officials, with racketeers and gangsters sometimes in open control. Among the more notorious were former convicts from Australia, the "Sydney Thugs." The citizens in 1851 had resorted to direct action in an effort to bring a semblance of order to the tortured city by organizing the Vigilance Committee. Doctor Cooper saw the Vigilantes rise again in 1856, with the city militia led by Doctor Isaac Rowell, who was to be associated with him a few years later on the faculty of California's first medical school. A highlight of the 1856 disturbance was the stabbing of a vigilante leader by a justice of the State Supreme Court, Judge David Terry, described as "a distinguished jurist and two-gun Texan." After the 1856 disturbance, San Francisco settled down under an honest city government to a decade of development.[6]

San Francisco in the 1850's, in spite of its besetments, encouraged the constructive genius of the immigrants from the Eastern United States who were arriving in multitudes. It was the principal terminal of 1500 miles of scheduled coach lines, equipped mostly with Concords, and an equal number of miles of steamer lines, coastal and inland. As early as 1853–55 extensive surveys were made for a "Pacific Railroad," the realization of which was to come after the Civil War. By the end of 1858 the Butterfield Stage was making regular runs between San Francisco and St. Louis.

Cultural progress was not lacking in the city during the decade. By 1856 there were thirteen daily periodicals, in English, French, German, Spanish, Italian, and Chinese. High schools, colleges, literary and learned societies, notably the Academy of Science in 1853, and the city's first short-lived medical societies developed in this period.

Richard Henry Dana, in San Francisco in 1859, 24 years after his visit recorded in *Two Years Before the Mast*, described his impressions:

> When I awoke in the morning, and looked from my window over the city of San Francisco, with its storehouses, towers, and steeples; its courthouses, theatres and hospitals; its daily journals; its well-filled learned professions; its fortresses and lighthouses; its wharves and harbor, with their thousand-ton clipper ships, more in number than London or Liverpool sheltered that day, itself one of the capitals of the American Republic, and the sole emporium of a new world, the awakened Pacific; . . . when I saw all these things . . . I could scarcely keep my hold on reality at all, or the genuineness of anything, and seemed to myself like one who had moved in "worlds not realized."[7]

This was the stage on which, for 7 years, the surgeon from Peoria was to play his role and speak his lines.

Doctor Cooper allied himself with the "regulars" practicing medicine, and at once found himself in the battle against quackery, which was rampant in the 50's. Newspapers of the day ran advertisements for herb cures, water cures, electric cures, phrenology and clairvoyant cures. Some of the institutes were ingenuously christened. There was the Smithsonian Medical and Hygienic Institute, with a Doctor Barlow Smith as the basis for the name. There was Doctor L. J. Czapkay's Grand Medical and Surgical Institute, established, according to the advertisement, for the permanent cure of all private and chronic diseases and the suppression of quackery, the doctor being a shop-boy masquerading as a Hungarian surgeon. There were ropers and steamer runners to bring the gullible into the emporiums of quackery.[8]

Doctor Cooper established a clinic within a few months after his arrival. He gave

[6] Hubert Howe Bancroft, *California*, Vol. VI, pp. 617, 618, 695, for details of this troubled period.

[7] Joseph Henry Jackson, ed., *The Western Gate*, p. 244.

[8] Henry Harris, *California's Medical Story*, pp. 173–74.

state-wide publicity to his clinic through the press of several languages. Patients were invited to Cooper's Eye, Ear, and Orthopedic Infirmary at 14 Sansome Street, with all surgical operations free on Wednesdays and Saturdays. Patients were advised to ask particularly for the director, who had recently visited the great clinics of Europe.[9] As the result of this lapse from the professional code, Cooper was for a time accused of advertising quackery, from which he redeemed himself by the integrity of his practice and his alignment with the regulars.

The desire of the substantial practitioners, many of them graduates of the great Eastern schools, to organize professional societies such as they had known in the East, plus the irritation and peril from quackery, led to the formation of the San Francisco societies. The physicians first organized on June 22, 1850, but within 4 months this first San Francisco County Medical Society wrangled itself to death over a fee schedule.

By 1855 three societies had been organized in the city, which survived long enough to send representatives to the State Society in 1857. These were the San Francisco Pathological Society, 1851, about which little is known, though it is listed in city directories up to 1863; the San Francisco Medical Society, 1853, with 63 eminently respectable members; and the San Francisco Medico-Chirurgical Association, organized in 1855. Doctor Cooper is credited with being the founder of this organization, within which the personal associations were forged which later took shape as the faculty of the medical department of the University of the Pacific.[10]

Doctor Henry Harris has painted a vivid word picture of a meeting of the Medico-Chirurgical Association in the autumn of 1855. In a doctor's office decorated with fetuses and monsters preserved in alcohol, as trophies of the hunt, sit ten or perhaps fifteen members. The light is from kerosene lamps with smoky wicks, fresh air is closed out, cuspidors are conveniently located. Discussion is general and runs the gamut of medicine, covering such subjects as delirium tremens, fractured femur, gunshot and knife wounds, cholera, sciatica, and whooping cough, the therapy of mercury and ergot, and the two enigmas, climate and atmosphere. Cooper asks if the other members have observed how difficult it is to cure syphilis and gonorrhea in the San Francisco atmosphere, and others have observed this drawback. From the French, Cooper reads a paper on the cure of sciatica by cauterizing the external ear. After treatment the patient, a stout Frenchwoman, walked for the first time in months. Gibbons voices the opinion that the result was entirely mental, comparing the cure to one of invalidism terminated by a soot-covered monkey's jumping out of a fireplace and startling the patient to the point of recovery.[11]

A more ambitious project was the founding of the California State Medical Society in 1856, with 76 charter members from sixteen counties of Central and Northern California, meeting in Sacramento. Doctor Washington Ayer, a friend of Doctor Cooper, is responsible for the statement that the latter was the prime mover in the organization of the State society, having been the one who issued the invitation in circular letters sent to all physicians in California whose names and addresses he could discover—this was before California had medical directories.[12]

At the meeting for organization Doctor B. F. Keene, State Senator from El Dorado, was elected President, with five vice-presidents, of whom the senior was Doctor Cooper. The code of medical ethics, recommended by the National Medical Association in 1847, and the Constitution and By-laws were adopted, standing committees

[9] *Southern Californian*, Vol. II, No. 19 (November 21, 1855), p. 4, col. 5.

[10] Washington Ayer, "Reminiscences of the Life and Labors of Elias Samuel Cooper," *Occidental Medical Times*, Vol. VII (November, 1893), p. 601.

[11] Henry Harris, *California's Medical Story*, pp. 123–124.

[12] Washington Ayer, "Reminiscences of the Life and Labors of Elias Samuel Cooper," *Occidental Medical Times*, Vol. VII (November, 1893), p. 601.

appointed, and scientific papers were read.

The *California Medical Journal* was started as the official publication of the new State medical society. Doctor John F. Morse was the editor and proprietor. The journal was a quarterly, published in Sacramento. It ran four excellent numbers, the last of which was printed in April, 1857, after which it died of dollar anemia.

The first scientific paper read before the Society was a report by Doctor Cooper on ligating the satellite veins in connection with the corresponding arteries, in the course of which the author described his experiments with fifteen dogs.[13]

The high point in the 4-year life of the Society was the 1857 meeting, Senior Vice-President Cooper presiding, Doctor Keene having died. Doctor Cooper delivered the annual President's address, his subject being, "Deformities of the Locomotive Apparatus."[14] Doctor Harris reported that this was a splendid meeting. Disease, hygiene, meteorology, quackery, legislation, and medical education all coming in for consideration. After this the society declined, due largely to the jealousies and conflicting interests of leaders of the local societies. From 1860 to 1870 there was no state medical society.[15]

The Committee on Medical Education, headed by Doctor John F. Morse, and appointed at the 1856 meeting of the State Medical Society, made its report in 1857. It was the opinion of the committee that it was not yet time to begin formal medical education in California. Considering the unsettled state of society in general, the small number of physicians giving evidence of interest in scientific medicine, and the casualness with which professional ethics was regarded by some, the position taken by the committee is easily understood. The drawback which was emphasized in the report was, however, the low state of medical and paramedical practice and service in the clinics of public hospitals, upon which clinical education and training would have to depend.

> As long as municipal governments regard hospitals as institutions in which the principal object seems to be to show the extent to which a bone-gnawing and washing-saving economy can be inflicted upon the impoverished sick, without any broad demonstrations of murder; so long as popular sentiment requires the managers of these asylums of benevolence to reduce the compensation for medical attendance to a parsimonious pittance; so long as the soul-crushing and heart-withering maxim "buy cheap and dispense sparingly" is written upon every feature of these institutions, cheap buildings and cheap furniture, cheap bedding and cheap food, cheap physicians and cheap nurses, cheap medicines and cheap instruments, no books and cheap coffins; so long as these are the characteristics that distinguish the popular spirit of American, or perhaps more properly speaking of California philanthropy, so long will it be a useless thing to attempt the establishment of clinical schools of medicine which are the natural and proper nurseries of a complete medical education.[16]

The Committee on Medical Education had the temerity to make suggestions to the Eastern schools concerning the language requirement. From the point of view of California practice, a knowledge of Spanish, French, and German was very desirable, a knowledge of the traditionally required Hebrew, Greek, and Latin was less so. This was one of Doctor Morse's ideas, and only later did he make an exception in favor of Latin.

Doctor Cooper now had an established reputation in California medicine. He was active in the professional societies. He had the friendship and support of many leading California physicians. He was known as a skillful and successful surgeon and general practitioner. A friend and fellow physician has pointed out the following as contributing particularly to his reputation among his

[13] Elias S. Cooper, "Operation of Ligating the External Iliac Artery and Vein," *California State Medical Journal*, Vol. I, No. 4 (April, 1857), pp. 441–445.

[14] *Ibid.*, Vol. I, No. 4 (April, 1857), pp. 429–434.

[15] Henry Harris, *California's Medical Story*, pp. 153–154.

[16] John F. Morse, *et al.*, "Report of Committee on Medical Education," *California State Medical Journal*, Vol. I, No. 4 (April, 1857), pp. 439–440.

confrères: An operation in 1856 for non-union of a transverse fracture of the tibia, in which both ends of the fractured bone were removed, a firm cartilaginous union made by nature in a few months, with complete recovery of the patient; the first Caesarean section in California, 1857, successful, but the cause of a suit for malpractice, with no conviction; the removal in 1857 of a portion of the fifth, sixth, and seventh ribs belonging to a Mr. Beal, exposing the heart to view, and removing, with forceps the surgeon was carrying in his vest pocket, of a piece of iron 1 inch long and ½ inch wide from within the pericardium and lying against the heart, where it had been for 72 days, the patient stating 4 months later that he felt fine, reported as "one of the most remarkable operations ever performed on the living."[17]

It was now time, in Doctor Cooper's opinion, to seek the realization of the dream that had brought him to California, the establishment of a school of medicine, with a teaching position for himself, and with opportunity to realize new ideas in medical education. His own position and prestige were sufficiently established. His circle of friends and acquaintances included the representative and respectable men needed for the venture.

Doctor Cooper and his friends resolved to connect with an established college rather than to set up a proprietary school. The school they selected and to which they addressed their proposition was the University of the Pacific, a Methodist Episcopal college located at Santa Clara, some 48 miles from San Francisco. The charter of the college had been approved by the State Board of Education in 1850. Its incorporators included the State Governor, John Bigler, and three physicians. Most of the remaining thirteen board members were clergymen. The school was small but had an excellent reputation.

[17] Washington Ayer, "Life and Labors of Elias Samuel Cooper," *Occidental Medical Times*, Vol. VII (November, 1893), pp. 603–606, originally the San Francisco County Medico-Chirurgical Association, Additional Paper to the *Transactions* for 1857.

In the fall of 1858 the Trustees of the University of the Pacific received this letter:

Gentlemen:

In view of the existing and growing necessity for a medical school upon this coast, the hereinafter named gentlemen, medical practitioners of San Francisco, have associated themselves and organized for the purpose of establishing the same: and believing the institution over which you preside the one best calculated to advance the cause of education they would respectfully ask to be constituted the *Medical Department* of the "Pacific University."

In making this request they ask *no* pecuniary aid, yet, believe the connection can be made mutually advantageous.

The faculty as now organized consists of the following named gentlemen—

Doctor E. S. Cooper, Professor of Anatomy and Surgery

Doctor Isaac Rowel (*sic*), Professor of Materia Medica and Forensic Medicine

Doctor James Morison, Professor of Pathology and Principles and Practice of Medicine

Doctor R. Beverly Cole, Professor of Obstetrics, Diseases of Women and Children and Physiology

In this connection I am authorized to state that the faculty as at present constituted (should circumstances favor) have in contemplation an augmentation of their members, so that, each professor shall fill but one chair, and further, that the character and standard of instruction imparted, together with the facilities offered for the proper and thorough study of the sciences of Medicine and Surgery shall be equal to those given at the commencement of the first schools of the East.

Should the above proposition meet with your approbation you will confer a favor by making the appointments herein named and communicating the same at your earliest convenience to

Yours very respectfully,
R. Beverly Cole
Registrar[18]

The acceptance was quickly forthcoming:

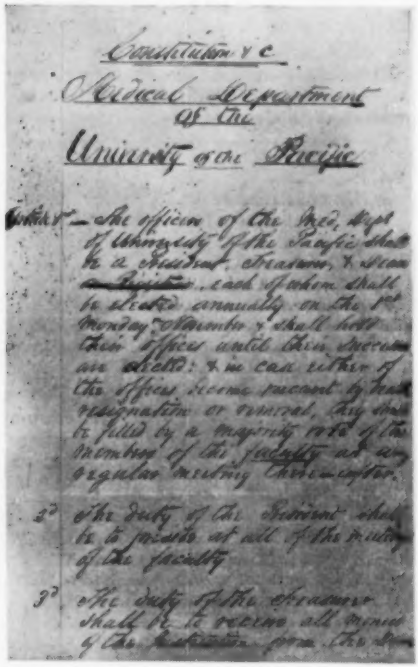
Resolved—that the President and Secretary of this Board be instructed to inform R. Beverly Cole, M.D., of our action upon his proposition and to assure the gentlemen above named as

[18] Letter, R. Beverly Cole to Trustees of University of the Pacific, MS, Lane Medical Library, n.d.

medical professors in the University of the Pacific of our pleasure upon the consummation of the agreement by which they are constituted the medical department of our university.

C. MACLAY, *secretary*[19]

The medical faculty adopted a constitution which made it largely autonomous and self-perpetuating. The officers named in the


Constitution &c
Medical Department
of the
University of the Pacific

FIRST PAGE OF THE CONSTITUTION OF THE FACULTY OF CALIFORNIA'S FIRST MEDICAL SCHOOL

document were the president, treasurer, and dean, to be elected by the faculty for a term of 1 year or until a successor was named. The officers were, respectively, Doctors Cooper, Rowell, and Cole. The dean was the workhorse of the group, authorized to carry on all official correspondence, collect fees, keep the academic records and the archives of the medical department.[20] The first medical faculty in California at the opening session of the Medical Department, in May, 1859, was constituted as follows:

Richard Beverly Cole, M.D., Dean, Professor of Obstetrics

J. Morison, M.D., Professor of Principles and Practice of Medicine and Pathology

Isaac Rowell, M.D. Professor of Chemistry

E. S. Cooper, M.D., Professor of Anatomy and Surgery

B. R. Carmen, M.D., Professor of Materia Medica

Honorable George Barstow, Professor of Medical Jurisprudence[21]

Some members of the first faculty were men of considerable note, some became so. All who were physicians were named in the selective listing of California's first register of physicians approved by the State Medical Society.[22] George Barstow was a prominent attorney. His presence on the faculty is worthy of note, since medical jurisprudence was rarely taught. However, the frequency with which California physicians were called upon to testify in cases involving casualties and death from accident, violence, poisoning, and insanity, led to setting up this course.

Doctor Cole had been long associated with teaching and administration in medical education, and in 1895 became president of the American Medical Association. Doctor Morison was a member of the Board of Trustees of the University of the Pacific. Levi Cooper Lane, Cooper's nephew, was invited to join the faculty in 1859 and became Professor of Physiology in 1861, after 2 years of study at Göttingen and Paris. For 40 years Lane was a leader in scientific medicine and medical education. He was for years the "boss" of local medical politics, and president of the state society in 1883.

[19] Letter, C. Maclay to R. Beverly Cole, MS, Lane Medical Library, October 18, 1858.

[20] "Constitution, Medical Department, University of the Pacific," MS, Lane Medical Library, n.d.

[21] University of the Pacific: Medical Department, *Announcement of Lectures*, Session of 1859, p. 5.

[22] "Medical Register of the State of California," *Pacific Medical and Surgical Journal*, Vol. I, No. 5 (May, 1858), pp. 206–211.

Doctor Henry Gibbons, Sr., an original member of the State Board of Health and the State Board of Examiners, in 1862 became Professor of Materia Medica, Botany, and Therapeutics, and was later associated with Doctor Lane in the reorganized Pacific School. Doctor John Frederick Morse, founder, editor, and proprietor of the *California State Medical Journal*, honored leader among the Masons and Odd Fellows of Sacramento, first president of the State Prison Commission, joined the faculty in 1863 as Professor of the Theory and Practice of Medicine, and held for 10 years a prominent place in California medical education.

Requirements for admission to the new school included a year of apprenticeship with a reputable physician or a high school diploma. Requirements for graduation were good moral character, a minimum age of 21 years, a minimum of 3 years devoted to the study of medicine, including two full courses of lectures, at least one of which must be at Pacific, one course of clinical instruction at an institution approved by the faculty, an original thesis on a medical subject and in the student's own handwriting, approval of the thesis by the dean, and success in the examination given by the faculty.

Fees were $20.00 to each professor, payable in advance, a matriculation fee of $5.00, payable but once, and a graduation fee of $50.00. Qualified applicants who were unable to pay full tuition were admitted as "Beneficiaries," and were charged $50.00 and the matriculation fee.

The regular course of lectures were announced to begin on the first Monday in May, and to continue for 18 weeks. A gratuitous orientation course was planned to begin the first of April, continuing until the beginning of the regular course.

The first circular appealed to westerners to get their medical education in the West, where disease had its own peculiarities, demanding treatment essentially different from that given for the same disease on the Atlantic seaboard. It was also asserted that the opportunity for studying practical anatomy in San Francisco was superior to any other known spot on the globe. Material for dissection was said to be abundant and cheap, and the salubrious breezes not only preserved the cadaver for an indefinite period of time, but protected the student from "effluvium," a constant danger to health during dissection elsewhere.

The hand of Doctor Cooper is seen in the announcement of the course in surgery, which was remarkably forward-looking for 1859. First, would be lectures on the principles and practice of surgery; next, demonstration on the cadaver; third, experimental surgery by vivisection, the students first assisting and later repeating under the eye of the professor. The purpose of the third step was said to be to school the hand, the eye, and the nerve of the student, thus giving him the experience he would need at the outset of his practice.[23] Manikins and colored diagrams were used in teaching gynecology. The Department of Physiology claimed to have the largest and most complete series of colored drawings in the United States.

Eleven students enrolled in the first class, fifteen in the second class. Two students who had studied elsewhere were graduated after the first course.[24] In the 6 years of the school's existence there were 28 graduates.

The first California venture in medical education was not without difficulties. Just as plans were under way, Doctor Cooper was haled into court on the malpractice charge referred to above (p. 637), brought by Mr. and Mrs. E. H. Hodges, the latter having recovered from the first Caesarean operation ever performed in California—if we exclude those performed by the Franciscan mission padres to permit the baptism of infants whose mothers died in childbirth—and the second such operation successfully performed by Cooper. The affair was apparently instigated by Doctor David Wooster,

[23] University of the Pacific: Medical Department, *Announcement of Lectures*, Session of 1859, pp. 7–9.

[24] "Editor's Table," *San Francisco Medical Press*, Vol. I, No. IV (October, 1860), pp. 236–237.

one of the two editors of the *Pacific Medical and Surgical Journal*, and Cooper's assistant with the operation. Unlike other critical operations of the period, in which the surgeon usually saw to it that several members of the profession were present to witness to all that was done, the only other witness to this memorable operation was Mrs. Kriemer, the grocer's wife, who sat in a corner with her eyes closed. The court record gives a full account of Wooster's testimony, with the opinions of a number of professional experts, but nothing from the defendant, who perhaps had talked too much at the state convention the previous February. On that occasion the state organization struck Cooper's report from its records but refused to support the charge of malpractice, to the displeasure of Wooster, who proceeded to try the case in his *Journal* before it came to the courts. There was no decision in the court case, due to a hung jury, but feelings ran high among the San Francisco physicians, and only gradually were the animosities of this unhappy incident blotted from memory.[25]

There was much ridicule heaped on the new school by some members of the profession, who asserted that it filled no need, its faculty would not hold together, it controlled no hospitals for directed clinical teaching, it was a "magnificent humbug," gotten up by self-created professors, and it would have no students. Doctor Wooster dubbed the school the "Cooper Shop," partly in reference, perhaps, to its humble quarters in a rent-free attic.

Doctor Cooper determined to found a medical journal, of which he would be the editor, as a mouthpiece for his views, to influence the profession in favor of the Pacific School, and to provide a publishing outlet for the faculty members and other friends. The *San Francisco Medical Press* was first published in January, 1860, with Cooper as editor until his death in 1862. The *Press* continued for 3 more years. During its short life it carried, besides many excellent reviews and technical papers, numerous descriptions of Doctor Cooper's experiments and theories, and many editorials of historic value. These editorials are the mirrors in which are to be seen the composite image of Elias Cooper in the last 2 years of his life.

His first editorial was a plea for understanding fellowship and mutual reinforcement among members of the medical profession. He urged the reading of professional journals, foreign as well as American, participation at medical conventions, the conducting of medical society affairs in such a manner that both the science and the profession of medicine would benefit, and he pointed out the benefits of sharing professional knowledge by publishing reports of novel cases. Dentists were also invited to publish in the *Press*.[26]

With the founding of the new school there were renewed attacks in the public press upon the procurement of bodies for dissection. It was reported that graves in the common, or poor, lot at Lone Mountain Cemetery were being violated. Chinamen, it was said, were the "vultures" hired as body snatchers, who watched daily for human prey to feed the greedy maw of science. This charge Doctor Cooper answered eloquently and courageously. He charged that a "medical Judas" was seeking to stir up public sentiment to stop dissection, for reasons of jealousy. He asked where medicine would be or what chances people would have of surviving certain conditions were it not for practical anatomy. The faculty had secured bodies with most scrupulous regard for public propriety and private feelings, he said, but they would continue to dissect, out of very necessity, and they would continue to get cadavers for the purpose, even if they had to send all over the Coast for the bodies of criminals who had been executed, or to the Indian Reserva-

[25] Ludwig A. Emge, "San Francisco's First Successful Cesarian Section," Presidential Address to the Pacific Coast Society of Obstetrics and Gynecology, *Western Journal of Surgery, Obstetrics and Gynecology*, Vol. VII (February, 1938), 17 unnumbered pages.

[26] "Editor's Table," *San Francisco Medical Press*, Vol. I, No. I (January, 1860), pp. 49–60.

tions, and even if each cadaver were to cost $500.00.[27]

He was ever the champion of medical education. People were flocking to California from all parts of the world. Where there were people in large numbers, he said, physicians would come in large numbers. Some of these physicians would be men with the capacity and interests to practice scientific medicine and to become medical educators. Learning that a second medical school was being considered by those whom he described as sneering at the first school, he stated editorially: "I hope they will. We always did like competition. It affords the finest stimulus to exertion, in the world."[28]

He informed his readers that the faculty of the Pacific School was working for quality equal to the best in the country. They had not been led on by "troublesome infatuations" to make immense and premature sacrifices to erect gorgeous buildings to accommodate a handful of students. They preferred having it said that the "Green Room" of the School was a terror to students, even if the classes were to remain forever small, than to have it said they were running a diploma mill.[29]

The charge that the "college doctors" had no hospitals in which to do clinical teaching was refuted by calling attention to the Pacific Clinical Infirmary, which they controlled. The faculty had offered to take over the medical supervision of the City and County Hospital, free of charge. This the Board of Supervisors had refused, but had arranged for the House Surgeon of the hospital to deliver clinical lectures on all the branches. While Cooper did not approve of this arrangement, he urged the students to attend the lectures, making this comment: "Things must have a start, and let this method of obtaining clinical instruction, however unusual, be eagerly embraced by the students." Some months later more favorable arrangements were made with the City and County Hospital, and St. Mary's Hospital was also available for clinical teaching, the three hospitals providing an amount of bedside instruction unusual for that period.[30]

Doctor Cooper urged the development of medical specialties, in an editorial written a few months before his death. He pointed out that in France physicians were encouraged to become specialists, while in the United States nearly all practitioners pursued all departments of medicine; indeed, there was a clause in the Code of Ethics which many physicians construed into a positive condemnation of the practicing of specialties. Nothing could be more inimical to the progress of practical as well as scientific medicine and surgery than to hinder or discourage men with special interests or talents from pursuing them.[31]

By mid-year, 1862, Doctor Cooper was failing. The prodigious labors to which he drove himself with nervous energy served to aggravate the obscure nervous affection and partial paralysis of the face which had touched him soon after his arrival in California, and a persistent wandering neuralgia in the extremities set in. On the advice of friends, his nephew accompanied him on a trip into the warm and humid Sacramento Valley, in the hope of bringing relief. It was his last journey. He died on October 13, 1862. A scientist to the last, he wrung from his nephew and friends a promise to have a thorough post mortem performed, which, incidentally, left the cause of his death still in doubt.

Doctor Henry Harris, the gifted historian of California medicine, said of Elias Cooper:

> In the romantic time of princes, barons and knights, he could have been the sire of an aristocratic line, for strength adequate to indifference of set ethical plan was in him. Neither the American Medical Association's Code of Ethics nor the restraints of his early faith could balk his ambitions. Interwoven with his conduct also were the inherent physical handi-

[27] *Ibid.*, Vol. I, No. IV (October, 1860), pp. 240–253.

[28] *Ibid.*, Vol. I, No. II (April, 1860), pp. 62–63.

[29] *Ibid.*, Vol. II, No. I (January, 1861), pp. 50–51.

[30] *Ibid.*, Vol. I, No. IV (October, 1860), pp. 238–239; Vol. II, No. I (January, 1861), p. 29.

[31] *Ibid.*, Vol. III, No. I (January, 1862), p. 31.

caps requiring over-defense. A beard covered the partially paralyzed face, an untiring zeal amounting to aggressiveness compensated for the lack of personal charm.[32]

Doctor Levi Lane has left this appraisal of his uncle:

> His great and leading characteristic was singleness of idea and continuity of purpose; the profession of medicine he loved, cultivated and was devoted to with his entire and undivided mind; from the period in which he espoused it, and fully began his career, every energy of his genius was given to it . . . no man ever died with more unfinished work; still, the brevity of his life is rendered more deserving of praise, from the fact that in it he has won an unfading chaplet of honor, which will give his name an enduring place among the illustrious dead of our profession.[33]

Friends rallied to keep the Cooper enterprises going. The *San Francisco Medical Press* was edited to 1864 by Lane, then Henry Gibbons, Sr., and R. Beverly Cole shared the responsibility to 1865, when the *Press* was absorbed by the *Pacific Medical and Surgical Journal*. Lane also undertook to carry on the leadership of the school, but he lacked at that time the drive and leadership ability of his uncle. The new Toland Medical College drew away the students. On their petition and Toland's invitation Lane and Gibbons joined the new faculty. Toland flourished for 6 years as a proprietary school, then dissension arose, and Lane and Gibbons withdrew in 1870 and reorganized the Medical Department of the University of the Pacific. Toland Medical College barely survived the secession, and soon affiliated with the University of California. The new Pacific faculty declined a similar invitation and went forward with their own plans. An affiliation, under the name Medical College of the Pacific, was arranged with the University (city) College of San Francisco, a Presbyterian institution. This continued for some 12 years, during which period the Cooper coterie held together and the fame and fortunes of Doctor Lane increased. In 1882 the school was moved into a new and imposing building paid for by Lane, and the school was renamed Cooper Medical College, in honor of Elias Cooper, a fitting memorial to a great man. In 1909 Cooper Medical College became the School of Medicine of Stanford University.

[32] Henry Harris, *California's Medical Story*, p. 369.

[33] *Ibid.*, Vol. III, No. IV (October, 1862), p. 243.

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The Role of the Preceptorship in Medical Education*

ROBERT C. PARKIN, M.D.,† AND OSLER L. PETERSON, M.D.‡
University of Wisconsin Medical School, Madison, Wis., and
Rockefeller Foundation, New York, N.Y.

The Wisconsin Preceptorial Program of teaching in medicine was initiated in 1926 and is the oldest of the modern preceptor programs. At the University of Wisconsin, the medical student spends 3 months of his senior year in this program. Timewise, this represents about 7½ per cent of his total medical school experience.

During the 30 years that this program has been in operation its purposes have been defined variously by different persons concerned with it. Although the original preceptors were carefully selected by the dean who originated this program, many of the preceptorships have changed hands, and the character of the practices has altered. As a rule, medical educators disagree as to the value of this type of teaching, to which many of them take exception. Practitioners, on the other hand, seem to favor it.

In view of the controversy and in view of the changes that have occurred in this program, it was felt that critical examination was necessary. Preliminary papers dealing with the results of this critical study have been presented. In this paper an attempt has been made to examine the Wisconsin preceptors with the same care that would be given to the consideration of a prospective faculty member, and it will deal with the observations made in the practices of fifteen physicians, each of whom had major preceptorial teaching responsibilities. The papers to follow will round out the discussions by presenting observations made from other points of view. The examination of the preceptor was concentrated mainly on the quality of his clinical work. His ability as a teacher has already been discussed in a previous paper and will be considered only casually.

METHODS OF STUDY

The methods closely follow those developed by Peterson, Spain, Andrews, and Greenberg in their study of North Carolina general practitioners in estimating the quality of medical care given by individual physicians (3). The report of their study classified doctors by the quality of their work into five subjectively determined "qualitative" classes. The present study has made use of their so-called quantitative ranking, in which details of performance are graded in the following fields: (*a*) clinical history, (*b*) physical examination, (*c*) use of laboratory aids, (*d*) therapy, (*e*) preventive medicine, and (*f*) clinical records. It will be recalled that in this scale the authors described various levels of performance, and the individual physician was assigned to a level that, it was believed, most accurately described his performance (Table 1). This so-called quantitative system is used, since it is believed that it has greater stability and more meaning than a subjective classification devised and used 5 years ago.

The observations upon which this paper was based were made by Dr. Osler L. Peter-

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† Coordinator of Postgraduate Medical Education.

‡ Associate Director, Division of Medical Education and Public Health, Rockefeller Foundation.

son and myself. As in the case of the North Carolina study, observations were made of the doctor at work in his office, on house calls, and in the hospital. Normally, 3 days were spent in observation of each doctor. For comparison with North Carolina results, see Table 2.

No determination has been made of observer error, by repeating visits, or by individual re-assessments of given physicians. However, all the records have been reviewed in detail by Dr. Peterson, who has had experience with this method, so as to achieve as much uniformity as possible. The scale used to describe practices was designed for the study of general practitioners, and, though it works reasonably well in the case of internists, it was not designed with the surgeon in mind. Despite some difficulties in application of the technique to this group it worked adequately.

TABLE 1

PORTION OF RATING SHEET

Disrobing for exam	0	Exam performed with patient dressed or almost completely dressed
	1	Patient sufficiently undressed to allow easy access to parts being examined
Chest percussion	0	Not done
	1	Chest thumped perfunctorily
	2	Percussion over all major lobes, determination of diaphragmatic level, diaphragmatic movements
Upper respiratory infections	0	Antibiotics given indiscriminately to all patients or to most patients
	1	Attempts made to separate viral and bacterial infections for purposes of therapy

Actual rating sheet covered entire history, physical examination and commonly performed laboratory procedures.

All the Wisconsin preceptors were informed as to the exact nature of the study to be made of their practices. With a clear understanding that the quality of their work was under scrutiny, it was possible that physicians' performances may have been altered. Since the time available for this study was not as long as might have been desirable, most of the time spent in the preceptors' practice was devoted to making observations about the quality of the medical care they rendered. In retrospect, it is regrettable that more information was not obtained about other aspects of their practice which would have been of interest and germane to the preceptor program. As an example, it would be of interest to know the number and character of the journals purchased by the various physicians.

RESULTS

A strong first impression formed by the observers was the substantial variation among the fifteen preceptors examined. Among them were general practitioners, general practitioner-surgeons, surgeons, and internists. Of major interest however, was the substantial variation in the quality of medical care being given. At best, the preceptors were giving superb patient care that could be fairly compared with the best being given in our teaching hospitals. Most of the physicians were quite good, but there were unfortunately a very few whose level of practice was clearly not satisfactory as a model for students. There were a few preceptors whose histories, physical examinations, laboratory work, and records were no better than "fair," but none could be described as a poor doctor.

TABLE 2

DISTRIBUTION OF WISCONSIN PRECEPTORS BY MEAN QUANTITATIVE SCORES IN COMPARISON WITH NORTH CAROLINA GENERAL PRACTITIONERS AND INTERNISTS

QS	G.P.'s	N.C. internists	Wis. preceptors
81–100	1	8	7
61– 80	13	7	5
41– 60	17	7	2
21– 40	43	1	1
0– 20	14	0	0

There were certain disquieting deficiencies that were fairly common among the doctors observed. We were repeatedly informed that antibiotic-resistant staphylococcal infections were not a problem in private practice. Independent evidence indi-

cates that Wisconsin suffers as much from resistant staphylococci as other areas. In our judgment there was indiscriminate use of antibiotics in minor respiratory disease and excessive use of tranquilizers. In one practice, women patients were catheterized for all routine urine examinations, certainly a dangerously over-zealous procedure.

In some practices there were found to be substantial gaps in the doctor's knowledge and information. Some of the preceptors, for example, were not aware of or had not read important papers related directly to their work and to the subjects about which they were presumably teaching students. Occasionally a doctor was judged to have less clinical acumen or knowledge than would be desirable in a teacher. An acutely ill patient was seen who was treated first for pyelonephritis and then for hepatitis before it was discovered at the end of 48 hours that his disease was an acute streptococcal pharyngitis. A "what shall we do next philosophy" appeared to guide this doctor. The observer felt that careful examination of the patient and some real thought might have permitted the correct diagnosis to be made at the outset rather than after 2 days' hospitalization. This doctor was not the weakest seen.

At the other extreme were found examples of unusually good practice. One physician, who, on the average, saw fewer than ten patients daily in his office performed meticuously careful patient examinations, normally of an hour's duration that were models of good care. Some physicians gave evidence of extensive clinical knowledge. A striking example was provided by a physician whose discussion of diabetes ranged from classical experiments, such as those of Houssay (2) to recent publications on the action of glucagon and the site of insulin action. Another doctor conducted an extensive program for the prevention of rheumatic fever among his patients. It was felt that many physicians exhibited real skill in the handling of psychosomatic diseases. The outstanding examples of good care evident in most practices were provided by careful searching histories and physical examinations, skilled use of laboratory and informative records.

In some of the surgical practices a large proportion of the patient population consisted of persons with fractures, orthopedic problems, or other surgical diseases. It was the observer's opinion that some surgeons who performed competently within their own specialty exhibited a disinterest toward general medical problems, which was reflected in their poorer performances as family physicians.

Practice facts.—Most of the physicians seen in the course of this study practiced in groups and most of them had excellent physical facilities available. All except three had well equipped laboratories, with technicians who were judged to be adequately trained. Some maintained inadequate laboratories in which the doctor himself performed a few routine procedures, and these were not considered good models for the students. The majority of physicians made use of appointment systems, an arrangement that is often associated with good medical care. Some of the groups had extensive library facilities, and a few even conducted journal clubs.

Morbidity.—A brief examination of the records of patients seen in three preceptorships, as contrasted with those of the Department of Medicine at the University of Wisconsin Hospitals, emphasizes the great differences in the problems seen. The diagnoses made at University Hospitals represent mainly selected serious chronic diseases and include many less common conditions such as Raynaud's disease, Hodgkin's disease, diverticulosis of the colon, anaplastic carcinoma, etc. The diseases seen in the preceptors' practices were both more acute and more variable. It was not uncommon to see patients with emotional illnesses, upper respiratory infections, arteriosclerotic heart disease and diabetes, or other combinations of serious and minor illnesses of great variety in any doctor's office in any given day.

There were also variations in morbidity

from practice to practice that made some more interesting than others to the observer. In one doctor's practice the observer was impressed by the large volume of antenatal and well-child care given. The paucity of sick or problem patients made this one of the less interesting practices to observe. Other doctors were confronted by many sick persons and many diagnostic problems.

This variation from an abundance of pathology in some practices to others in which well-child care comprises a large part of the doctor's work must affect the students' attitudes and interest—as it did the observers'. The practice mentioned above in which there were very few sick patients was indeed regarded by the students as a rather dull experience.

Observations on teaching.—The observations that were made on the teaching were necessarily limited, since it was felt wise to exclude the student from the doctor's office during our period of observation. However, since there were opportunities to see some teaching, a few comments will be made. Visiting practices in many small cities and rural areas also presented opportunities for fairly prolonged discussions with the students. One of the things that quickly attracted attention was the great variation in the approach made to the student's education by the various preceptors. At one extreme, the student was a passive observer during a large portion of his preceptorship. At the other extreme was a situation in which the practice was completely turned over to a student for several days while the preceptor left town. In the best of the preceptorships, much thought was given to, and careful arrangements were made for, employment of the student's time. Printed schedules were available, reading assignments were made, provisions were made for patient examinations, consultations with radiologists and pathologists, etc. In general, it can be stated that there was a tendency to require the student to obtain histories and perform physical examinations on hospitalized patients while, on the other hand, being treated as merely an observer during whatever period of time he spent in the doctor's office.

The bedside teaching that was observed was often preoccupied with a patient's symptoms or the positive finding, with less consideration given to the meaning of the findings as they illuminated the diagnostic theory under consideration. It is certainly fair to say that it was not generally as intensive an intellectual experience as we choose to believe teaching in the medical school to be. One of the observers was quite certain that student supervision had improved in many of the practices as a result of specific criticism of the teaching during the preceding year. This observation should encourage the medical schools with preceptorship programs, since it strongly suggests that careful supervision of the teaching and attention to the organization of the preceptorship can improve its educational value.

It is not necessary to spend a long time observing practitioners before one becomes aware of the fact that the atmosphere of private practice is very different from that of the teaching hospital. Although there is variation, there is in general a permissive atmosphere in private practice, a philosophy which affects contacts of one doctor with another. Physicians in general appear loath to criticize their colleagues or even to gently contradict them. The general atmosphere of practice is reflected in the usual handling of the students. This was exemplified by the remark of one student that, at his hospital, he was usually informed about his mistakes but was never made to feel badly about them. This rather careful treatment of colleagues and students may have contributed to the popularity of the preceptor program among the students.

The business of medicine.—Some of the arguments advanced in support of preceptor-type teaching are that it acquaints the student with the reality and business side of private practice. Most of the preceptors did not think this of sufficient importance to spend a major period of time on

it. A few, however, did acquaint the student briefly with their own business methods.

SUMMARY

In summary, we have today presented you with a picture of the Wisconsin Preceptorial Program which emphasizes variation. Though most of the doctors had good workshops with ample help and good laboratories, there were some that were not so well equipped as one might wish. In general, the patients and the pathology seen in the various preceptorships presented an extremely interesting cross-section of acute and chronic, serious and mild, although there were some practices in which many of the diseases seen were trivial and routine and uninteresting.

Teaching was varied. In too many of the practices it was felt that the student occupied a passive role while in others he was placed in charge of the practice or served continuously as a junior intern. In many of the practices there was substantial emphasis on what was done rather than on what the doctor or the student was thinking.

The Wisconsin program was originally described in the following words: ". . . (it is) designed primarily to give the average undergraduate student an opportunity to learn something of medicine as an art, through close association with a series of preceptors selected because of their skill in applying the science of medicine in daily practice" (1). What the "art" of medicine is, is not a concept upon which all doctors agree. It is difficult to define and at best is virtually indistinguishable from good clinical medicine. The authors are inclined to take the cash and let the credit go. The "cash" in this case is skill in applying the science of medicine in daily practice.

Certainly a chief problem with respect to preceptorial programs concerns the selection of preceptors of great clinical skill and the definition of the objectives of the program. Certainly the university cannot accept as a preceptor a physician whose standards of practice are poorer than those of the university medical center. The university, in effect, endorses or approves a doctor when it sends a student to work under his direction.

The university has not outlined or supervised the teaching duties and responsibilities of the preceptor. The medical school has not provided the preceptors with the same educational assistance that it provides for the members of its own staff.

In conclusion, we wish to emphasize that there was great variation in the skill with which the preceptors applied the science of medicine in daily practice, and some of the practices were rather poor in this respect. There was also great variation in the thought and care given to the teaching of the medical student. There must be greater effort on the part of the medical school and the preceptors to bring the standards of work and teaching up to the level of standards that the university imposes upon itself.

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The Role of the Preceptor in the University of Wisconsin Preceptor Program*

LESLIE G. KINDSCHI, M.D., FACP
The Monroe Clinic, Monroe, Wis.

The prime role of the preceptor in our Wisconsin program is to teach the student the practical application of the scientific disciplines that he has so laboriously learned. Through the teaching modality of general private practice, we show him the daily problems as they arise, problems that every private practitioner must meet, regardless of the phase or facet that is presented.

During this 3-month period, the student sees human illness in its natural environment, as well as in the partially controlled environment of the office, and the more completely controlled environment of the hospital. He begins to grasp the tremendous importance of functional illness, and to learn how to distinguish it from obscure or incipient organic disease. He observes acute problems as well as subacute and chronic ones. And, perhaps most importantly, he learns that these problems can be met by the private practitioner on a high plane of science without exceeding the bounds of the economic, social, and philosophical framework of the society in which we all must live.

This is the broad basic challenge of the preceptor program. Properly met, it can exert a truly profound influence upon the life of the senior medical student. If he is destined to enter private practice, it will act as an invaluable guide. If he aspires to the academic world, this close contact with private practice, brief though it may be, is bound to enhance his teaching qualities in the training of future practitioners.

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THE PRECEPTOR PROGRAM AT MONROE

The Monroe Clinic is but one of several comparable units participating in the Wisconsin program. We are a 21-man group, located in a city of 7,500, engaged primarily in the general practice of medicine as a group, rather than in a consulting practice. We maintain our own clinic building and carry on the hospital part of our practice in the local, 150-bed, fully accredited Catholic hospital. Since our hospital does not have a resident staff, each doctor is responsible at all times for the care of his patients, whether it be in the home, in the office, or in the hospital. Thus, even though each staff member is limited to teaching his particular field, as a group we can still expose the student to the full range of experience that composes the daily cross-section of general private practice.

When a student first reports for duty, he is given a tentative schedule of work. Each week is divided into 3 days in medicine, 1 day in surgery, 1 day in pediatrics, and ½ day in obstetrics.

Since the purpose of the preceptorship is to give the student the widest and most profitable experience possible, these assignments are extremely elastic. The student is relatively free to leave his routine assignment whenever a better educational opportunity arises. Thus, he is on 24-hour call for all accident cases or other emergencies, for deliveries, house calls, and for any unusual problem a staff member might wish him to see. He is, of course, on call for all post-mortem examinations, and this usually takes precedence over all other assignments.

To attain this type of freedom for our

preceptees, we discourage any and all situations that might tend to tie him to a daily obligated routine. We prefer that he not live in the hospital, working for his room and board as a part-time laboratory assistant or orderly; nor do we want him to act as a clinical clerk or junior intern. Rather, we insist that his routine work be limited to specific assignments, made with regard for their teaching value rather than with regard for the help that may be rendered to either the doctor or the hospital. However, even in this busy schedule, the student must have some elective time to return to his books, in order that the experiences of the day may become firmly fixed in his general fund of knowledge.

Our preceptor program also involves a certain amount of didactic teaching. We have our weekly Clinic Staff Meetings which are programmed to include case reports, x-ray conferences, reports from the men who have recently attended scientific meetings, instructional films, and so on. In addition, there is the monthly Hospital Staff Meeting with its clinico-pathological conference. Didactic teaching is not the primary method of the preceptor, however. Rather, his unique responsibility is to make the specific point at the specific time, to recall the quick review, and to make the significant, on-the-spot correlations. All this can be done as the student and the preceptor face each problem of the day together.

THE BROAD DISCIPLINES OF PRIVATE PRACTICE

Now, for the moment, let us turn away from the scientific aspects of the preceptor program and consider some of the broader experiences that we can bring to the student. I refer to the disciplines of medical economics, medical sociology, and medical philosophy—disciplines that are not ordinarily taught as such in the campus medical curriculum, but disciplines that, nevertheless, must be mastered by one who would succeed in private practice.

The discipline of medical economics.—Basic economics is a fundamental discipline in all private enterprise, including the private practice of medicine. It is important to us because it provides the means for creating and distributing medical service. There has always been a traditional aversion to applying the terms of commerce to the practice of medicine, since one is motivated primarily by profit, and the other primarily by humanitarianism. The fact remains, however, that the private practice of medicine simply could not exist without offering the practitioner the means of survival, stability, and security.

Most of our students are but dimly aware of the truly staggering costs of modern medical care, and of the ways and means that have been devised for meeting these costs. They are, of course, interested in learning something of the problems involved in setting up in private practice, as well as the problems of overhead, fees, and collections. To truly understand these problems, they must first understand the economic viewpoint of the patient who pays the costs.

Now, the patient must view his total medical costs, in terms of time lost from productive work, as well as in terms of his bills from the physician, the laboratory, the hospital, and the pharmacy. If he pays for these services out of his own pocket, he has every right to insist that they be kept to a minimum, consistent with high-grade modern medical care. He is likely to resent paying for endless routine x-rays, and countless batteries of laboratory tests, if they are not specifically related to the problem that concerns him most. The physician must thus be prepared to justify each item of expense in terms of patient benefit.

By the same token, the practitioner must never deny his patient a single necessary or indicated service simply because the patient cannot pay for it. If ways and means of economic help are not available, the practitioner must bear the costs himself, lest he sacrifice a single bit of his professional integrity.

Even as the student must appreciate the viewpoint of the patient who pays his own way, he must also appreciate the fact that

the viewpoint changes when the patient joins one of the many prepaid medical care plans that are beginning to dominate the field of medical economics.

At the present time, there is much confusion in this area, but out of this confusion there will eventually emerge a basic pattern of comprehensive medical care, quite different from the pattern we know today.

As preceptors, we can and must acquaint our students with these problems in order that they may prepare themselves for intelligent participation in the evolving economic pattern of medicine.

The discipline of medical sociology.—The discipline of medical sociology is important to the practitioner because it so greatly enhances the power of medical science in attaining humanitarian ends.

The family doctor knows this discipline well. He has learned the necessity of knowing human nature as well as human illnesses; to understand the fears, the frustrations, and the futile resentments that illness imposes upon the patient and upon the patient's family as well.

The academic practitioner also knows this discipline. However, he is usually in a position to delegate this phase of the practitioner's responsibility to a trained social worker and thus keep it quite apart from his teaching of scientific medicine.

The faculty at Wisconsin has always stressed the unique opportunity of the preceptorship to emphasize the importance of medical sociology to the student. About 2 years ago, a project was set up to study ways and means of exploiting this opportunity, a project in which The Monroe Clinic was fortunately able to participate.

Through a grant from the Rockefeller Foundation, Dr. Bowers and Dr. Evans obtained the services of a part-time social worker who spent 2 afternoons each week at our Clinic, in conferences with our students and staff. Each student was assigned a case study to follow during his stay in Monroe, and at the end of the quarter he submitted his report to us for discussion.

It was a most productive endeavor. Mrs. Marion Kahn, who was assigned to this project, succeeded not only in giving the students a thorough introduction into the discipline of medical sociology, but also in giving our own staff a new viewpoint, and a new stimulus to emphasize this particular discipline in our preceptor program.

The discipline of medical philosophy.—The third discipline that lies at least partly within the range of preceptor teaching is the discipline of medical philosophy. It is an important discipline, because it is from medical philosophy that the practitioner can derive his highest and most enduring motivation.

How can the preceptor best help the student mold his attitudes for the unselfish benefit of mankind? How can he help the student develop the highest possible sense of human values?

The academic philosopher would probably reduce this discussion to the terms of medical ethics; but, as a practitioner, I prefer to speak of it in terms of human relations —or, if you will, in terms of the personal side of medicine.

The tangible rewards of good personal relations in medicine are quite obvious to the student. He can easily understand that the private patient is still free to choose his own physician, and that the choice is often made on the basis of human relations rather than on the basis of professional competence. He can thus understand why the private practitioner must seek to at least satisfy, and if possible, to please his patients, provided, of course, that he does not compromise his professional conscience in the process.

Tangible compensation, necessary as it is to the mechanics of private practice, is insignificant in comparison to the intangible compensation that comes to the practitioner from the personal side of medicine. This is the return on the extra effort and the extra interest given by the physician, above and beyond the call of objective scientific duty; the return that cannot be equated with dollars; the return that stems only from the inner satisfaction of knowing that one has

added his special contribution to the sum total value of human dignity and comfort.

I view with regret the modern trend toward impersonal medical practice. Advancements in medical science inevitably lend impetus to this trend; but of far greater importance is the increasing degree of participation in medical practice by the government, by the insurance-carriers, and by the various social agencies. One cannot deny that there are certain obvious advantages in this "three party" type of practice; but he must not be blind to the fact that it also tends to force both patient and doctor into a captive relationship. Such a relationship may eliminate the material incentives, but far worse, it may also come very near to penalizing the doctor who would practice the personal type of medicine.

The point I want to emphasize is this: Even under the circumstances of captive relationship, the practitioner *can* retain the personal side of medicine if he so wills. I feel confident that the future practitioner will not forsake the human side of practice if he can but taste, early in his training, the rich intangible rewards that it offers.

THE MEDICAL SCHOOL–PRECEPTOR RELATIONSHIP

Up to this point we have been discussing the role of the preceptor in his responsibilities to the student. Now let us consider his role in relation to the Medical School.

In the over-all picture of the preceptor program, this is perhaps the area of most critical concern. It is an area that has not been clearly charted, but, as these papers indicate, it is being aggressively explored. Only when this is done can there be a final judgment of the place of preceptor teaching in medical education.

The core of the problem lies in the question: How can the Medical School guarantee that the preceptor teaching is of university caliber?

There is no easy answer to this question, because the relationship between the school and the preceptor is quite different from the relationship between the school and the full-time on-campus faculty member.

In the first place, the preceptor is a relatively free agent with a primary responsibility to his patients rather than to his students. He has no firm contractual obligations to the school and receives no monetary compensation for his efforts. He lives and works outside of the university environment, beyond the pale of the intellectual atmosphere that both stimulates and restrains the activities of the regular faculty member.

Secondly, I would point out that there is an inevitable difference in preceptorships, differences that reflect the natural variations in facilities and opportunities, as well as the differences in the ages and philosophies of the preceptors. Thus, in our Wisconsin system, about half of our students serve their preceptorships in highly organized group practice, and half in less highly organized units, or within the sphere of an individual practitioner.

These two circumstances—the relative isolation of the preceptor and the variation of teaching opportunity—must be taken into account when each preceptor program is set up. The program itself must be constantly reviewed and changed as new circumstances enter the picture.

To put it another way, the Medical School faculty simply cannot set rigid requirements and enforce them equally throughout the preceptor program. Rather, the faculty must define as clearly as possible the educational goal that the preceptor is expected to attain and then rely upon the preceptor to do his utmost to attain that goal, without perceptible supervision.

To the professional educator, this approach may seem a bit fantastic, but we preceptors know it is not. Wisconsin has had over 30 years of experience in this teaching modality and has found it highly acceptable. Difficulties and problems have, of course, been encountered, but none so great as to shake our faith in the system as it has worked in our particular state.

In actual fact, the medical faculty at

Wisconsin has not relinquished control over the preceptor at all. Rather, it exerts both a direct and an indirect influence that add up to a rather remarkable degree of effectiveness.

The direct influence is exerted through the annual tour of inspection, and through the spring and fall preceptors' meetings at the school. The first permits an on-the-spot evaluation of effectiveness by a regular faculty member. The second gives the preceptors an opportunity to discuss problems and programs with each other and with the faculty. During these meetings there is always a half-day scientific program presented by the staff on subjects requested by the preceptors, or on the current investigational work being carried out on the campus.

The indirect influence stems from two sources. The first has to do with the quarterly reports made by both the students and the preceptors to the Dean. The second, and perhaps the most powerful of all, is a corollary of the professional prestige that goes with the preceptorship appointment.

The student reports returned to the Dean by each student at the end of his preceptorship quarter have been an exceedingly interesting side of the program. The students have shown themselves surprisingly mature and observant in their analyses. Of course, the preceptors also report on the students. So from the two entirely independent reports, the Medical Faculty can gain an accurate picture of the general effectiveness of the preceptor program in each of the many areas.

The final analysis is returned to the preceptor in an annual report which points up both the strengths and the weaknesses of the program with the expectation that the preceptor will make any indicated changes.

The prestige that goes with the preceptorship is perhaps the strongest of all the means of control that the Medical School can exert. The practitioners of Wisconsin consider it a signal honor to be invited to participate in the preceptor program of the Medical School. It is much the same type of relationship that is established at the metropolitan medical centers when the private practitioner is appointed for certain duties on the teaching services of the large university hospitals. To the private practitioner this association is concrete recognition of competence—a touch to the ego, if you will, but nevertheless the most powerful motivating force of all in the carrying out of a successful program.

Thus, over the years, the University of Wisconsin has developed an unusual but highly effective relationship with its preceptors.

Such, then, is the general picture of the preceptor program at the University of Wisconsin. The basic role of the preceptor is to demonstrate the practical application of the scientific disciplines in the private practice of medicine. The secondary responsibility is to at least introduce the students to the broader disciplines of medical economics, medical sociology, and medical philosophy.

Obviously, the preceptor must present the viewpoint of the private practitioner, which is somewhat different than the viewpoint of our academic colleagues. The difference of viewpoint is complimentary rather than contradictory, however. Properly presented to the student, it can give him an exciting sense of binocular perception, a stimulating sense of orientation, and a stabilizing sense of direction as he prepares to embark upon his career in medicine.

A Student's View of the Preceptorship Program*

LEON ROSENBERG†
National Institutes of Health, Bethesda, Maryland

The success or failure of the medical preceptorship program at the University of Wisconsin rests on the interplay between three variables: the structure of the program itself; the response of the student or preceptee; and the attitude of the preceptor. Dr. Parkin has analyzed the first of these. Dr. Kindschi has discussed the last. My task is to offer a general appraisal of the students' reactions to the present program. I will be unable to use statistics or to quote figures from a controlled study assessing students' feelings, because none have been compiled and because the nature of the problem does not lend itself to quantitation. Rather, I will depend on my own response, on widespread discussion with my confrères, and, of greatest import, on information obtained from impartial interviews conducted with each senior student following his preceptorship quarter during 1957 and 1958. The interview, conducted by lay personnel, was essentially unstructured, and the student was invited to enumerate the strong and weak points of his preceptorship experience. Some questioning was mandatory to cover points which were of particular interest in the study. The interview was intended to provide information regarding the student's reaction to his individual program, his recommendations for improvement, and his appraisal of the value of preceptorship experience as compared with other parts of his medical education.

Dr. Parkin has already alluded to the significant differences in the individual preceptorships, but this warrants further emphasis because of its great bearing on students' evaluation. Certain programs are essentially substitute internships in which the student lives in the hospital, examines patients and attends conferences there. He rarely visits the preceptor's office or makes house calls. This type of organization acts to preclude much close personal contact between doctor and student formerly thought essential to the preceptorship program, and replaces it with a maximum of responsibility and exposure to stimulating clinical material. Often, co-preceptors are appointed to provide added supervision and increase the personal associations lacking in this structure. Quite opposite are the programs in which the student lives in a private dwelling and accompanies the preceptor in all his activities, thus offering an ideal opportunity for teamwork and teaching by precept, although perhaps narrowing the diversity of patient contact.

In contrast to the variation in structure, all preceptorships at the University of Wisconsin have one great likeness: the chance to see acute disease. Because of its location in a relatively small city with a very small indigent population, and because it is totally a referral institution, the University Hospital suffers a continuous shortage of acute medical and surgical patients. In direct contrast, preceptorship practice is locally generated and thereby offers a wealth of acute problems—both major and minor. Since graduating from medical school, I have spent two years at the Columbia-Presbyterian medical center as an intern and assistant resident in the Department of

* Presented as the third in a series of three papers on the University of Wisconsin Preceptorship Program, at the Annual meeting of the Association of American Medical Colleges, Philadelphia, Pa., October, 1958.

† Assistant Resident, Internal Medicine.

Medicine, and have had ample opportunity to compare the teaching program in New York with that in Madison. I have no doubt as to the value of the preceptorship program in Madison, but am convinced that, in the presence of the tremendous in-patient and outpatient load at Columbia, such a program would be superfluous, and indeed inferior to that in effect now at Presbyterian. This points out, to me, that any educational method must be tailored to the assets and requirements of a given institution or community.

With these introductory comments in mind, let us now turn to the other determinants of a successful preceptorship. At the outset I must emphasize that no single factor can be cited as the crucial variable in this analysis. Study of the post-preceptorship interviews revealed a great number of determinants of both favorable and unfavorable response. Frequently mentioned items included location of the preceptorship, hospital facilities, and family or financial hardships, but in no case did these ecologic variables assume primary importance. Three factors appeared again and again as the major determinants of students' reactions.

The first, and probably the most significant single element, was the student's feeling concerning his role as a preceptee. The most positive statements about the program came from those students who had had the most extensive direct patient contact and who felt that they had been integral members of a medical team—active, supervised participants in the decisions and care of their patients, with significant individual responsibility. Conversely, those students who had primarily been observers during the 3 months, or who felt that they had been given too much responsibility with too little supervision, had the greatest negative response to the system and often voiced the opinion that the preceptorship be shortened or even abolished.

The second vital factor involved the personal relationship between preceptor and student. This went far beyond simply "getting along" with one another or enjoying each other's company. It depended largely on the respect generated for the doctor by the student—respect gained after observing his handling of different clinical and personal situations. In no instance was the student dissatisfied when he found wisdom, kindness, and understanding in his preceptor. In contrast, the very few instances in which negative feelings prevailed were unanimously viewed as failures.

Although of lesser significance than the areas of roles and relationships described above, the educational characteristics of the preceptorship were the third most mentioned variable. The programs which offered definitive assignments and organized time expenditure were felt to be far superior to those in which anxiety and frustration were produced by ill-defined responsibilities and excessive idleness. A substantial load of histories and physical examinations was not considered a burden when discussion, constructive criticism, and follow-up were added to the initial "work-up." The most favorable responses came from preceptorships where an attempt at direct, more formal teaching had supplemented instruction by precept alone.

The preceptorship quarter is the basis for a great deal of discussion by fourth-year students at the University of Wisconsin medical school. The group expects a great deal from the preceptorship and many view it as the high point of the year. "Bull sessions" by groups of students always follow their preceptor assignment. Some find it difficult to return to the University after their "emancipation." Altogether, the program invokes a favorable response from the majority, although there is always a dissenting group who favor a more academic orientation during this period—feeling that practical problems can be mastered in postgraduate assignments.

My preceptorship left me with mixed feelings. It was a substitute internship, with time equally divided between medicine and surgery, but no exposure to the other specialties. Too much of my time was spent

starting infusions or assisting in the operating room—too little spent in discussion with my preceptor or in the library. Despite these weaknesses, I considered the program of great value to me. Why? Because my preceptor, an exceptionally well trained and thoughtful clinician, cared for his patients in a truly devoted fashion. He was far too busy and too shy to tell me how to practice medicine, but few words were necessary. I left my preceptorship with a keen awareness of its flaws, but these seem singularly unimportant to me now, when compared with the meticulous thoroughness and profound understanding exhibited by my preceptor. These qualities I will remember long after the details of the program defy recollection.

I would like to conclude my remarks with a quotation from an address delivered by Dr. Charles Bardeen in 1928 before the American Congress on Medical Education. These words were spoken 2 years after Dr. Bardeen had formulated and activated the preceptorship program at the University of Wisconsin. They aptly summarize what I have attempted to relate:

> In the training of students in the art of medicine, close association of student and teacher is essential. The student learns to treat disease by being made responsible for the care of patients, to command the respect and confidence of the sick by opportunity to earn it. The main problem in medical education from the standpoint of the practice of medicine comes at the period when the student is beginning to assume clinical responsibility. It is the problem of adequate opportunity and competent supervision.

The Effect of Voluntary vs. Obligatory Textbook Assignments and Recitations on Learning Principles of Surgery

JOHN A. GIUS, M.D.,* PAUL J. BLOMMERS, PH.D.,† RUSSELL MEYERS, M.D.,‡ AND ROBERT T. TIDRICK, M.D.§

Department of Surgery, College of Medicine; and the College of Education, State University of Iowa, Iowa City, Iowa

For a number of years 3d-year medical students at the State University of Iowa have been required, during their clerkship on the Surgical Service, to attend a course in "Surgical Readings." The number of such students involved in any one trimester has represented a third of the Junior class, meeting for 1 hour twice weekly to review systematically the material covered by the reading assignments in a standard surgical textbook.

Some members of the surgical staff were of the opinion that the course constituted a decidedly worth-while exercise; others were equally strongly impressed in the opposite direction. The remainder of the staff expressed opinions distributed throughout the intermediate range between these two poles. Lively discussion on the matter ultimately led the staff to subject the issues to experimental inquiry. The question to which an answer was sought was this: "Does a formal course in Surgical Readings, involving obligatory textbook assignments, discussions, quizzes and written problems, provide a significant increase in learning, comprehension, retention, and later reproduction of surgical information over the methods of voluntary reading and other efforts on the part of the student? In short, is a formal course in Surgical Readings necessary?"

* Professor of Surgery.

† Professor of Education.

‡ Professor of Surgery, Chairman, Division of Neurosurgery.

§ Professor and Head, Department of Surgery.

EXPERIMENTAL

Subjects and materials.—Students of the third year class (1957–1958) in Medicine constituted the subjects. A third of the class (about 33 students) was assigned to the Department of Surgery during each trimester of 11–12 weeks. A list of the class members and of their individual grade point averages (GPA) derived from the first 2 years of medical school provided a basis for dividing the entire class into four levels. Within each performance ("ability") level the subjects were randomly assigned to a *Control Group*, i.e., those who were to take the course in Surgical Readings, and an *Experimental Group*, i.e., those who were not to take the course. The reason for introducing such a performance level factor is treated in the section of this paper entitled, *Analysis I*.

As has long been the local custom, the entire class was divided into three large sections assigned to rotate through the major clinical departments (Surgery, Medicine, and Obstetrics and Gynecology-Pediatrics) each trimester. Thus, the division of the class with respect to assignment to service bore no relationship to the student's record nor his position in a control or experimental group within a performance level. Because of this there was a small variation in the size of the control and experimental groups dur-

ing each trimester. Thus, in the first trimester there were slightly more students in the control than in the experimental group, while in the second and third trimesters the reverse was true. This situation, plus the added fact that it was necessary to change the examinations from trimester to trimester, threatened considerably to compromise precise control of the variables involved and therefore of the scientific evaluation of acquired data. The method evolved to correct for these factors will be described in the section of this paper dealing with standard scores.

Examinations were given to both experimental and control subjects upon the completion of the trimester during which they were assigned to the Surgical Service. These included oral and written examinations. The "orals" were conducted by senior staff members, each student being quizzed by two such staff members for about 20 minutes, and the ratings of each examiner averaged.

All students on the Surgical Service during a particular trimester took the same essay examination at the completion of their tours of duty. The examination consisted of answering a choice of three out of four offered discussion-type questions. The names of the students did not appear on any of the examination papers. Numbers only were used. Each question was answered in a separate examination book and was reviewed and graded by a senior staff member who had not participated in the Surgical Readings instruction. As previously noted, the questions used necessarily differed from trimester to trimester.

In addition to the oral and written examinations administered at the completion of the trimester's work, all members of the class were obliged to write a comprehensive "objective" examination at the end of the school year. This covered a wide variety of subjects, and, in order to avoid problems which might have been discussed *only* in the Surgical Readings class, it consisted of questions selected from a list submitted by members of the staff who had not participated in the Surgical Readings Course. The questions were carefully edited and pretested on a group of interns and junior residents.

It will be apparent that the time period elapsing between the completion of the course and the administration of the final "objective" examination varied for the different trimester groups. In this connection it is of interest that the same examination was given simultaneously to students of the Senior class just about to graduate. Although there was a slight difference in the mean in favor of the Junior class, the difference was not statistically significant.

In brief, grades from the following examinations were available at the completion of the school year for comparing the control and experimental groups: (*a*) oral examination (at the end of trimester), (*b*) essay examination (at the end of trimester), and (*c*) "objective" examination (at end of school year).

TABLE 1

NUMBERS AND MEAN GRADE-POINT AVERAGES FOR GROUPS USED TO ESTABLISH STANDARD SCORES

	Control group		Experimental group	
Trimester	N*	Mean GPA	n	Mean GPA
1	13	2.38	13	2.39
2	12	2.33	12	2.33
3	14	2.41	14	2.41

*N = number of subjects involved in developing standard score conversion tables. In case of 1st trimester group, for example, there were thirteen out of the control group and thirteen out of the experimental group, or a total of 26 used to establish the conversion table.

The standard scores used.—The first problem consisted of the development of a system of standard scores which would be comparable for the different oral and essay examinations used from trimester to trimester. To achieve this, equal groups of control and experimental subjects, matched in terms of previous grade-point averages (GPA), were fashioned for each trimester. The numbers of subjects and the mean grade-point averages corresponding to these groups appear in Table 1. The two groups for Trimester 1 were pooled and distributions formed of their raw scores on the oral and essay examinations. By means of an

"area transformation," tables were developed for converting these distributions of raw scores into normally distributed standard scores having a mean of 50 and a standard deviation of 10.[1] These conversion tables were then used to transform the raw scores on the oral and essay examinations of all 33 subjects taking the course during the first trimester into standard scores. The same procedure was followed in establishing conversion tables appropriate for converting the second- and third-trimester raw scores into comparable standard scores.

The effect of this procedure was to express the measured achievement in terms of numerical units comparable from trimester to trimester. The use of matched groups of control and experimental students, of equal size, further provided for the appropriate retention in the standard scores of such information as is contained in the raw scores with regard to *relative differences* in the performances of control and experimental subjects.

Because the numbers of control and experimental subjects differed from trimester to trimester, the possible treatment (methods) effect as measured by differences between the mean performances for the two treatment groups on the final "objective" examination was compromised by the effect of possible forgetting or other decrement with the passage of time on the part of students taking the course during the first and second trimesters. Because of this and by means of the same scheme as was used with the oral and essay examination results, conversion tables appropriate for use with each trimester group were established for transforming the final "objective" test scores into standard scores.

Analysis I.—From the outset of this investigation it seemed possible that some interaction might exist between the ability level of the students and the method of taking the course. That is, it appeared reasonable to expect that the method of voluntary independent study might be more effective with students of high ability than with students of low ability, whereas (again conceivably) the opposite might be true of the method of obligatory class attendance, reading assignments, write-ups of clinical problems, and periodic quizzes. Hence, in planning the experiment, a design was adopted intended to provide a test for the existence of such an interaction effect, as well as of the existence of an over-all "methods difference." The design used is commonly known as a "treatment-by-levels" design (1).

Prior to the opening of the first trimester, the 100 Junior students scheduled to take the course at some time during the year were ranked from high to low on the basis of grade-point averages (GPA) for the first 2 years of their medical studies. The highest 25 students were randomly split into groups of thirteen and twelve. Thirteen were assigned to the experimental and twelve to the control group. A similar procedure was carried out with the second and third highest and with the fourth or lowest groups of 25 students. Thus, before the opening of the first trimester each student was identified as either an experimental or a control subject. For each of four ability levels there were thirteen experimental and twelve control subjects. The adoption of this scheme resulted in slightly differing numbers of con-

[1] An area transformation involves defining as equivalent those points on two score scales for which the relative cumulative frequencies or percentile ranks are the same. In the graphical representation of frequency distributions the relative frequency (proportion or per cent) of scores within a given segment of a score scale is represented by the area of that portion of the frequency curve above the given segment. Hence, the name "area transformation."

In the situation at hand one of the distributions involved might, for example, consist of the scores made on the oral examination by the 26 matched control and experimental subjects taking the course during the first trimester. The other distribution, of course, consists of the standard score normal distribution having a mean of 50 and a standard deviation of 10. In this latter distribution a score of 40, for example, has a relative cumulative frequency or percentile rank of approximately 16. Hence, the 16th percentile on the score scale of the oral examination distribution would be transformed into a standard score value of 40. Equivalence or conversion tables for the two scales are constructed by thus relating all score values on one (the oral examination scale) to score values on the other (the standard score scale).

trol and experimental subjects from trimester to trimester.

Table 2 summarizes the mean standard score on each test for each method group at each ability level and also for each method group over all ability levels. The significance of the interaction between methods and ability levels and the significance of the difference between the over-all methods means were then tested by the technique of analysis of variance (1). In no case was either the interaction effect or the over-all treatment effect found to be statistically significant.

TABLE 2

SUB-GROUP AND OVER-ALL MEANS

	ORAL TEST		ESSAY TEST		OBJECTIVE TEST	
LEVEL	Control	Exper.	Control	Exper.	Control	Exper.
1	54.3	56.2	55.5	53.5	58.2	59.1
2	53.1	53.8	52.0	53.8	53.3	53.5
3	48.8	44.7	48.3	46.2	50.1	44.1
4	47.8	43.1	44.7	46.0	43.8	42.7
Over-all	51.0	49.5	50.1	49.7	51.3	49.8

TABLE 3

COMPOSITE SCORE MEANS

Level	Control	Experimental
1	168.0	168.8
2	158.4	160.2
3	147.2	135.0
4	136.2	131.8
Over-all	152.4	148.9

In an effort to obtain a single more reliable measure of achievement in this course, a composite score was obtained for each subject by simply adding his standard scores on the oral, essay, and objective tests. The means of these composite scores for each treatment group at each ability level and for each treatment group over-all ability levels are summarized in Table 3.

Again, neither the interaction effect nor the over-all treatment effect proved to be statistically significant.

Analysis II.—In view of the possibility that the rather arbitrary scheme for conversion of raw to standard scores may have been employed (in some unanticipated way) at the cost of information inherent in the raw scores, it was decided to analyze the raw score data separately for each trimester. To achieve as much precision as possible, the methods of analysis of co-variance were used with the previous grade-point averages as a control variable (1). In all, twelve such analyses were carried out—one each for the oral, essay, objective and composite scores (sum of the three raw scores) made during each of the three trimesters. The twelve pairs of adjusted methods means are shown in Table 4. The adjustment thus made allowance for over-all differences in the performance of the individuals comprising the treatment groups as measured by previous GPA.

Of the twelve pairs of adjusted means, seven involved differences that favored the control method, and five involved differences favoring the experimental method. Only one of the seven differences favoring the control method (oral, second trimester) and only two of the five differences favoring the experimental method (essay and composite, first trimester) were statistically significant.

DISCUSSION

In three of the four analyses involving ability levels (oral, objective, and composite scores) the interaction effect was in the direction anticipated. That is, there were observed differences between methods means in favor of the experimental method for the high ability level groups and observed differences between methods means in favor of the control method for the low ability level groups (see Tables 2 and 3). In no instance could these observed interaction effects be considered statistically significant. In the

remaining analysis (essay scores, see Table 2), the observed interaction effects were also non-significant, but in a direction opposite to that anticipated. While the evidence is not unequivocally conclusive, it seems clear that no interaction of practical consequence between treatments and ability levels exists.

Similarly, the results of both the analyses involving ability levels and the separate trimester co-variance analyses of raw score data indicate no difference of practical consequence between the two methods of instruction. Such small observed differences as exist tend to be in favor of the control method.

It should be pointed out that student awareness of participation in an experiment as a member of an experimental group whose performances were manifestly intended for ultimate comparison with those of a control group might itself serve as an extraneous motivating factor, spurring the experimental subjects to "keep up" with the control group. The possibility that, if neither a Surgical Readings class nor an experiment of this kind were involved, at least some of the presssure influencing the members of the experimental group would be removed, cannot be lightly dismissed.

It is in any case clear that the issues at stake are concerned with whether learning would proceed at the same level *with or without* such pressure as class assignments, recitations, oral quizzes, and problems and *with or without* the artificial motivation of an experimental situation. As the conditions of experiment did not provide circumstances pertinent to the latter, the prime question raised at Surgical Staff Conference cannot be answered with finality on the basis of the data derived from the present study.[2]

TABLE 4

ADJUSTED TREATMENT MEANS

	First trimester		Second trimester		Third trimester	
Test	Control	Exper.	Control	Exper.	Control	Exper.
Oral	79.9	83.0	87.3	83.0	83.5	84.1
Essay	65.4	71.4	75.1	73.8	78.7	75.6
Objective	70.5	72.5	72.5	71.2	73.4	70.8
Composite	216.8	226.7	234.7	227.8	235.5	230.5

CONCLUSION

An attempt was made to compare the effect of voluntary *versus* obligatory textbook assignments and recitations upon the learning of material subsumed under Principles of Surgery as measured by the performances of third-year medical students in their several oral and written examinations. Under the conditions of the present study, no significant difference in the performances of an experimental and control group were disclosed.

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[2] This difficulty had been anticipated at the outset. The designers of the experiment realized that an answer could be relied upon only if a wide disparity in performance scores evolved from the study.

A Department of Behavioral Science*

ROBERT STRAUS, PH.D.†
College of Medicine, University of Kentucky, Lexington, Ky.

Background and role of behavioral science in a medical center.—Most current discussions of medical education are highlighted by references to the recent ferment, experimentation, and change which are taking place in medical schools throughout the United States. This ferment is reflected in the reorganization of curricula, the addition of new subject matter, in pedagogical innovations, and in philosophical reorientation. Among the major innovations which have characterized this ferment has been the inclusion of the behavioral sciences in medical education and research. (The term behavioral science as used here refers primarily to sociology, cultural anthropology, and social and experimental psychology. Secondarily, it draws upon content from economics, geography, history, and political science. Behavioral science as here conceived also involves correlation of certain concepts of the social and psychological sciences with those of the biological and physical sciences.)

The active participation of behavioral scientists in medical education began less than 10 years ago and has increased rapidly. In 1959, more than 60 sociologists and anthropologists have some direct participation in medical education in about half of the 85 medical schools in the United States. In addition, more than 200 behavioral scientists are engaged in research on problems pertaining to illness or health care. In 1957, the Council on Medical Education and Hospitals of the American Medical Association revised its "essentials of an acceptable medical school" to add human behavior to its list of subjects required as "basic knowledge" in medical education. There has been a parallel movement in nursing education. Full-time behavioral scientists have been added to the faculties of several colleges of nursing, and other schools are revising their curricula to include behavioral science content. A significant number of sociologists, anthropologists, and psychologists are also engaged in research related to nursing.

A review of existing medical education programs reveals that, organizationally, there is no distinct administrative pattern for integrating behavioral scientists into medical school faculties. Most frequently they are found as members of departments of public health and preventive medicine or departments of psychiatry. While the assignment of behavioral scientists to these departments tends to define and limit their areas of activity and may facilitate participation with significant depth in the programs of the respective departments, a review of ongoing activity indicates that such assignments, when rigidly adhered to, often restrict the behavioral scientist from realizing the full range of potential contribution which he may be able to make in many aspects of the total medical school program. Behavioral scientists in departments of preventive medicine have frequently realized that the types of teaching and research function to which they can contribute are equally or more applicable to pediatrics, psychiatry, internal medicine, obstetrics,

* This discussion of the objectives, organization, and proposed program of a Department of Behavorial Science was submitted by Dean William R. Willard to the Board of Trustees of the University of Kentucky in support of his recommendation that the Department be formally established in the University's new College of Medicine. This recommendation was approved by the Board on February 20, 1959.

† Professor of Medical Sociology and Chairman, Department of Behavioral Science.

or surgery as they are to public health and preventive medicine.

In some instances where the behavioral scientist has had the opportunity to develop a broad range of collaborative activity within the medical school, a departmental assignment to public health, preventive medicine, or psychiatry has had little functional meaning. In other instances, however, where departmental assignments have been more literally defined, the behavioral scientist has sometimes felt isolated and restricted in his application. For example, in a department of public health he may be limited to such subjects as the epidemiology of infectious disease or community health organization. Because membership in a department of public health carries a symbolic definition of role, this, too, has sometimes contributed to a limited conception by other faculty members of the behavioral scientist's potential function and has limited his range of activity. In a similar way, behavioral scientists assigned to a department of psychiatry have frequently focused primarily or exclusively on behavior with special reference to mental health and disease or on the psychiatric, diagnostic, or therapeutic process. Thus, while their contributions have often been significant, behavioral scientists have not always been in a position to realize the potential spectrum of their contribution to a total program of medical education and research.

The basic objectives and orientation of the University of Kentucky Medical Center require the development of substantial strength in the area of behavioral science. The Center is committed to a philosophy of comprehensive patient care and to programs of education and research based on the concepts of comprehensive medicine. Comprehensive medicine involves the organization of health resources to deal with the total health of a patient through an integrated, continuing plan incorporating prevention, rehabilitation, and long-term care, as well as diagnosis and treatment of specific symptoms. The comprehensive approach to health care calls for consideration of the interaction in human behavior of psychological, social, and cultural factors with biological and physical factors. The behavioral sciences provide both a theoretical framework and research findings which give added validity, depth, and significance to the over-all understanding of causes, prevalence, course, and clinical management of a patient's health problems, their impact on family, job, and community situations, social structure, and interaction in the therapeutic setting.

The University of Kentucky Medical Center is committed to the health team concept. This involves coordination for the planning and provision of health care through the correlated efforts of persons with a variety of knowledge, skills, and training, including physicians representing various specialties, nurses, social workers, and representatives of several health-related professions. Behavioral science research is basic to the understanding of role relationships between various members of the health team. Behavioral science content is pertinent to the curriculum for students of medicine, nursing, dentistry, and other health-related professions and to in-service training for Medical Center personnel. The Center is also committed to helping the State solve its health problems through the effective and efficient application of medical science to meet the health needs of the people. Here, too, behavioral science concepts, methodology, and content can help the Center fulfill its role.

Behavioral science in the organization of a medical center.—The Medical Center requires a strong organizational base for the behavioral science faculty; a base with sufficient status to permit behavioral scientists to collaborate effectively in teaching, research, and administration with faculty in other departments and units of the Medical Center as need and opportunity arise, and which at the same time will provide for the development of a teaching, research, and service program independent of the traditional departments.

These considerations have led to the conclusion that a separate Department of Be-

havioral Science should be established in the College of Medicine, responsible for serving all Medical Center programs and for developing appropriate collaboration with the Graduate School and other units of the University. As now envisioned, the Department will have the following major research and teaching objectives and functions:

The specific program of a Department of Behavioral Science.—The Department of Behavioral Science will try to help students, residents, physicians, nurses, and other health personnel achieve concepts and principles from many traditionally defined subject areas relating to human behavior in general and, specifically, to human response to illness. Special emphasis will be placed on studying the interaction between characteristics of man's internal body systems (physiological, biochemical, anatomical, etc.), his external physical environment, his personality or psychological characteristics, his social experiences in group interaction, and the forces of the culture in which he lives. This approach to a correlation of concepts is consistent with current trends in medical education and research. The Department will also be concerned with a historical, cross-cultural, and contemporary analysis of the emergence of medicine as a highly organized, distinctly defined system of human behavior. This should enable the student to develop a broad perspective of the place of medicine in society and relate developments in scientific medicine and the organization of health care to those of other major systems of human behavior (government, religion, economics, technology, the arts). Research and teaching in the behavioral sciences can also contribute to an understanding of important components of health behavior (expectations, roles, norms, techniques) and can help provide the perceptive student with an objective basis for understanding his own experience and environment.

In collaboration with other faculty, the behavioral scientists can participate in research and teaching pertaining to human growth and development. Here a consideration of major events and experiences in the human life cycle can provide an opportunity for delineating major health problems associated with various life experiences and for considering once more the interrelatedness of biological, physical, psychological, social, and cultural factors in every phase of human behavior. Concepts of interaction can further be illustrated through collaborative investigation around selected aspects of physiological functions.

While certain aspects of the role envisioned for the Department of Behavioral Science encompass some of the basic concepts frequently found in introductory courses in psychiatry and in public health and preventive medicine, they are oriented to a broader application than either of these fields traditionally attempts. The application of behavioral science concepts and content can be generalized under three headings:

1. Behavior in relation to the natural course of disease: Many behavioral scientists are engaged in research concerned with the identification of specific psychological, social, and other environmental factors which bear upon the genesis, diagnosis, course, and management of the disease process, and with understanding the dynamics involved therein. There is emerging a body of evidence, both empirical and theoretical, which has direct bearing on the teaching of comprehensive clinical medicine. It is anticipated that behavioral science faculty can make a significant contribution to the programs of the various clinical departments, participating as is appropriate in research and in formal or informal discussions of clinical problems. It is not proposed that behavioral science teaching as such be formalized in the clinical program in any specially designated, fragmented offering. Such an arrangement would contradict the basic concept of interrelatedness in the consideration of psychological and social aspects of illness. As in the case of the biological and physical sciences, it is proposed that most formal behavioral science teaching be presented as part of the basic science curriculum.

2. Health needs of society: Principles,

concepts, and research findings of the behavioral sciences are also applicable to an understanding of the processes for mobilizing health resources to meet the needs of the population at large. In this connection, an understanding of the forces of culture, including expectations, values, attitudes, and beliefs as they apply to considerations of health needs and medical resources, can facilitate the planning of medical care programs which will be compatible with prevailing culture and realistic in terms of technological, economic, and populational characteristics. The contributions of behavioral scientists will depend on continuing research and will involve collaboration with those departments and individual Medical Center faculty members who are most concerned with the broader problems of health care, including the nature, organization, distribution, and functioning of health resources to meet most efficiently and effectively the health needs of society. In addition to research and education, the Department should be able to play a service role by providing consultation for health agencies and programs throughout the State.

3. Understanding relationships: A third area of contribution stems from the insight which the behavioral sciences can provide for understanding the basic structure of society and the nature of human relationships. In this connection, a study of such factors as role, status, and the expected and functional relationships between persons holding various roles in the medical setting can contribute to effective administrative and program planning both within the Medical Center and in relation to other health resources of the State. In addition, an understanding of role theory can help the individual student, resident, physician, nurse, and other health personnel gain insight into their own behavior and attain more sympathetic understanding of the needs and behavior of others.

While not exhaustive, the functions outlined above serve to define the nature and range of responsibility for members of a department of behavioral science to the extent that these are now envisioned. They will, of course, be subject to continuing evaluation and to such modification as experience may dictate. It is expected that participation of these faculty personnel will usually occur in three major areas—teaching, research, and consultation. Formal teaching will be in the form of basic science units of instruction supplemented by informal collaborative teaching activity at the clinical level.

Relationships of a Department of Behavioral Science to other University departments.—It is to be expected that some questions may arise concerning possible "overlap" of functions of the Department of Behavioral Science and certain functions frequently performed by other departments, especially psychiatry, psychology, or social work. Common interests among members of various departments are to be expected and are highly desirable in a program committed to the correlation of knowledge. A basic objective of the Department of Behavioral Science will be to encourage and develop collaborative effort whenever and wherever mutual interests can be defined.

In some medical schools, behavioral scientists have been identified closely with teaching and research developed around a "family health clerkship." No specific designation for such a course within the Department of Behavioral Science is suggested for the University of Kentucky. Impressions gained from various experiments, in which students follow families over a period of time in order to observe continuing adaptation to health, led to the conclusion that such experiences can be more meaningful if they are an integral part of the clinical program rather than an isolated "special" course. As appropriate, behavioral scientists may have an opportunity to participate in such teaching under the aegis of one or more of the clinical departments.

The establishment of a Department of Behavioral Science does not mean that other departments in the Medical Center cannot have full-time services of persons who have professional training in the behavioral sciences. For example, just as the Department of Pediatrics may well have a full-time physiologist or biochemist, so it may be that

the Department of Psychiatry will have a full-time anthropologist. It is important, however, to provide all professional personnel in the Medical Center with an opportunity to identify with others who have the same professional background. Accordingly, if other departments have behavioral scientists, the principle of joint appointments and concurrence on appointments should be followed. It is anticipated that most clinical psychologists in the Center would have a primary base in the Department of Psychiatry. A physical anthropologist would probably relate primarily to the Department of Anatomy.

The Department of Behavioral Science should provide excellent potential for attracting research grants and other support for the Medical Center and the University at large. In the event that members of the University of Kentucky faculty in the various fields which comprise the behavioral sciences may have special interest in medical care and in the multi-phasic aspects of human behavior, opportunities for participation in research, teaching, or other Medical Center activities can be provided through relationship with the Department of Behavioral Science. In a similar way, members of the Department of Behavioral Science will participate in appropriate activities in association with other departments of the University. In certain instances, under circumstances agreeable to all deans and department chairmen concerned, joint appointments would seem appropriate and desirable as a means of assuring effective liaison between departments.

Still another potential development is a program of graduate education providing Medical Center courses and research opportunities for doctoral candidates in any of the behavioral sciences. Under a variety of names and forms, such programs have been recently established, are proposed, or are under study at several universities in response to a rapidly growing demand. The philosophical orientation program, objectives, facilities, and faculty strength of the University of Kentucky Medical Center can be expected to provide unique opportunities for graduate students in the behavioral sciences.

Staffing pattern.—It is recommended that an initial basic staffing pattern for the Department of Behavioral Science provide for six positions to be supported by State appropriation and that appointees to these positions represent the fields of medical sociology, cultural anthropology, and experimental and/or social psychology. In addition, there should be technical and secretarial help and provisions for part-time graduate student assistants. This basic staffing pattern should, of course, be subject to change as the program becomes better defined. Depending on the specific directions or emphases with which the Department's program may develop, it may be desirable to add positions for a statistician, a geneticist, or a physiologist. It may be anticipated that this Department will be further augmented through grant support for research and special projects.

Summary of objectives for the Department of Behavioral Science.—With the basic departmental organization and the opportunities for collaborative participation within the Medical Center and throughout the University as described in this memorandum, the Department of Behavioral Science should be in a strong position to fulfill these major objectives: first, the delineation and synthesis of principles and content from the behavioral sciences which are specially pertinent to the understanding of human behavior in health and disease, and the correlation of these principles with those of the biological and physical sciences in the development of a conceptual frame of reference useful for the practice of comprehensive medicine; second, the application of behavioral science concepts and research findings to a further understanding of the diagnosis, treatment, and management of the individual patient, to the mobilization of health resources to meet the needs of society, and to the understanding of interpersonal relationships and social structure within medical institutions themselves.

The Role of the Sociologist in Medical Education*

SAMUEL W. BLOOM, PH.D.†
Department of Psychiatry, Baylor University College of Medicine, Houston, Texas

I

Fifty years ago, the problem of American medical education was primarily involved with the relationship between the medical profession and what might be called the community of science. Indirectly, but in a very real sense, the relationship between medicine and the lay society at large was concerned. As Flexner documented so unsparingly, the medical profession, by condoning and actually sponsoring the proprietary school, was contributing to the neglect of the public health. It was not that medical education in this country was poor in all instances, but, as Flexner stated it, "... there is probably no other country in the world in which there is so great a distance and so fatal a difference between the best, the average, and the worst" (7). The solution which was accepted and put into operation was to incorporate the medical school in the university, applying the standards of excellence traditional in the graduate study of the scientific disciplines to the education of doctors. Fifty intervening years have seen the stabilization of this relationship between medical education and university science with outstanding results.

Today medical education in this country appears to be facing a new kind of challenge. Simply stated, it is to prepare future physicians for a deeper understanding and skill with the interpersonal part of the doctor-patient relationship. In other words, the art of medicine is striving for the discipline of a social science of medicine. To a significant extent, the requirements of medical practice appear to have shifted in emphasis from questions of knowledge *about disease* to questions *about the patient*, the patient's feelings, and the environmental context of his illness. Included are questions about patterns of patient reaction to the physician himself. As L. J. Henderson has said, the physician can do harm to the patient with words just as surely as he can do harm by prescribing the wrong drug or by making a false cut with a scapel (9).

It is unnecessary to review the programmatic changes in medical education which have evolved to deal with this problem. Integrated teaching is breaking traditional departmental boundaries and also the boundary between the clinical and the preclinical. Harvard's preclinical curriculum in the medical sciences is an example of the former, and the Western Reserve curriculum revision is the outstanding example of the latter. Whatever the form of the change, however, it appears that all the new programs share implicitly a common motive: They attempt to prepare the student, in some planned way, for the human relations side of medicine. They are no longer satisfied, as they were more or less in the past, to leave this part of the education of the doctor to chance. Since it is precisely the job of social science to introduce order and verified knowledge into our understanding of the psychosocial aspects of human behavior, one would expect that medical education, in its new-found concern for these problems, would turn increasingly for assistance to social scientists. This is indeed what has happened. In particular, the sociologist, both as researcher and as teacher, has been

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† Assistant Professor of Sociology.

utilized in the medical school as never before.

Concerning the contributions of sociology to medical research, several recent papers review these developments in detail (2, 5, 8). Reader and Goss have gone further to analyze the significance of these research trends for both medicine and sociology (12). As yet, however, the role of the sociologist as a teaching colleague in the medical faculty has not been analyzed. It is specifically in his teaching function that the sociologist in medicine is studied in the remainder of this paper. Presented first is a case description of the role of the sociologist as experienced by the author at Baylor University College of Medicine, in the Department of Psychiatry.

II

Baylor's Department of Psychiatry has developed its teaching of sociology as one of the behavioral sciences (*a*) wholly within the department as the preclinical subject matter of psychiatry and (*b*) emphasizing the basic research aspects of these disciplines. This teaching program, as it will be discussed, dates from the beginning of Dr. William T. Lhamon's tenure as chairman, in 1954.

When the decision was first made to include a sociologist, it was anticipated that the Department of Psychiatry might be only a temporary home, leading to the creation of a separate department of social or behavioral science. In the meantime, due in large part to the high value assigned to investigative work, a varied research program developed rapidly, characterized by cooperative effort among a variety of disciplines. In consequence, the full-time sociologist in the department gravitated to a research team which includes a psychiatrist, psychophysiologist, pharmacologist, and electronics engineer, all full-time staff members of the department of psychiatry. They are working on a study of group process. Similarly, the clinical psychologists have jointed with a psychiatrist in a study of perception. Plans have been concluded for recruiting more sociologists and more psychologists, but the idea of breaking off into a separate department of behavioral science is no longer seriously considered for the near future.

The teaching of the behavioral sciences was initiated by the Professor of Psychiatry (William T. Lhamon) in weekly lectures to the freshmen medical students (1954–55). The following year, a full-time psychologist joined the department and began to share with Dr. Lhamon the responsibility for preclinical teaching. In 1956, a sociologist joined the department and took an equal share of the teaching assignment in the behavioral sciences.

The Baylor situation provided 33 hours in the freshman teaching curriculum for psychiatry. A plan of weekly didactic lectures evolved, divided into three roughly equal parts: (*a*) the psychology of human behavior, (*b*) human development from childhood to old age, and (*c*) sociological aspects of human behavior. The instructional labor was equally divided, with the psychologist administering the first part, the psychiatrist the second part, and the sociologist responsible for the third part. This pattern has been revised during the current year (1958–59) in the attempt to integrate the three approaches. Instead of teaching entirely separate blocks of instruction time, the participating instructors have begun to function as a team, arranging their lectures around common problems. Thus, perception was studied as a psychological process, as a dependent variable significantly influenced by social factors, and as a mental process which is distorted in cases of psychopathology. The development of personality is now being studied from a similarly three-pronged approach.

In practice, the didactic lecture has been used in this course to stimulate intellectually more than to feed. Quite deliberately, these lectures avoided the attempt to provide thorough coverage of subject matter. Chosen instead was a method designed to "stimulate interest and curiosity about the unsolved problems basic to psychiatry" (3).

This includes an emphasis on the research literature and the presentation, whenever appropriate, of research in progress by members of the department.

Fortunately, the value climate of the Department of Psychiatry fits into the prevailing values of its medical school. This is evident in the recent curriculum revisions which have been designed to give students more free time. It is further evidenced by the widespread efforts of the faculty to encourage students to initiate projects of study on their own, and their avoidance of so-called cookbook teaching procedures.

Whatever the reasons involved, freshman medical students three years ago spontaneously requested a psychiatry elective. Since that time, a research elective has become a yearly offering of the department. In 1957–58, eighteen students, including nine freshmen and nine sophomores, participated in the elective. Each of these students engaged in some investigative project of his choice under the supervision of one or more faculty members. In addition, the students participated in a seminar devoted mostly to review of the work in progress on the elective projects and partly to faculty presentations.

The directors of this elective program found themselves being pressed to provide follow-up opportunities to continue interesting projects. Summer positions as research assistants and fellowships for outstanding projects have been created. In a preliminary assessment of the psychiatry elective, its directors said the following:

> We have been impressed by the students' acceptance of the behavioral sciences as areas for the investment of time and interest. It is our impression that this experiment emphasizes three points: first, from the medical students' point of view, that the nontraditional basic sciences of behavior have a definite place during the preclinical medical education; second, that interest and participation in behavioral science research can be developed in an atmosphere of inquiry and faculty enthusiasm; and third, that the research seminar, which has so long been an essential component of graduate education in all other scientific fields, has a place in undergraduate psychiatric education. (3)

During this past summer, several students requested that they be allowed to continue the research of their psychiatry elective on a more intensive basis. As a result, a program of graduate study toward a Master of Science degree in Behavioral Science has been incorporated in the activities of the department. Currently, three students have been accepted as degree students, working on a split-year basis, half-time as graduate students and half-time in their medical studies. Two are in their second year and one in his third year of medical school. In effect, by adding 1 year's time to their medical school studies, they may qualify for both an M.S. and an M.D. degree. The administrative responsibility for this program is in the hands of a committee of four members of the psychiatry department, including a psychiatrist, a physiologist, a psychologist, and the sociologist, with the latter acting as chairman.

To summarize, a total view of Baylor's instructional program in the behavioral sciences would include four parts. First, there are 33 hours of lecture which, in content, follow the recommended outline of Cameron (4). Second, there are approximately 24 hours of an elective research seminar, plus individual staff conferences with students. Third, approximately 16 hours of direct instructional responsibility is given to the interdepartmental course called, "Introduction to Medicine," with staff participation in 48 additional hours of this course. Fourth, a graduate degree program is now in operation, for which at least two weekly seminars are conducted by different members of the department.

Turning to the sociologist, what, more specifically, is the part he plays in the Baylor psychiatric program? The writer of this paper joined the Baylor faculty on a full-time basis in 1956. At that time, the role he was to play was totally unstructured. The process of defining the sociologist's position is still very much in the experimental stages, but a few tendencies may be described.

The sociologist is expected, like all of his colleagues in the department of psychiatry,

to participate in both teaching and research. Because of the special value assigned by the head of the department to scholarly activity, the tendency has been by others in the situation to perceive the sociologist primarily as a research investigator in his field. His activities as a teacher are regarded as important but secondary. On the other hand, the sociologist in this situation has been challenged most by the question of what concepts, theories, and methods in sociology are most directly relevant for medical education, and how can they best be communicated to medical students? It has seemed that these questions, which emanate principally from the teaching task, have important implications both in theory-construction and in the formulation of problems for research. Accordingly, considerable time has been devoted to the writing of a monograph on sociological concepts which may be interpreted as specially relevant to medicine. This work has for its main testing ground the lectures to the freshman and, currently, an elective seminar on sociocultural aspects of human behavior.

In addition, the sociologist is expected to join in the psychiatry elective as a project director and member of the research seminar. Participation is also expected in the interdepartmental freshman course, "Introduction to Medicine," both as a leader of discussion and as a regular member of the group.

Sociology, within the context of the Baylor Department of Psychiatry, is conceived entirely as a basic science of behavior. Consequently, almost no pressure has been exerted on the sociologist's professional identification with his own field. The role of the sociologist has been interpreted in a form which is analogous to the graduate educator in the liberal arts college of the university. In fact, this role, as translated in the Baylor medical community, tends to accent and encourage the effort toward original scholarship possibly even more than the corresponding position in most liberal arts colleges.

Partly because of the favorable intellectual climate and partly because of the inner logic of the material, the classical sources of sociology have supplied most of the content in both the teaching and research at Baylor up to this point. For example, social system analysis as described by Simmel, Henderson, and Parsons has proved to be effective for teaching about the doctor-patient relationship. In teaching the graduate student of sociology, a broad selection of reading is available on small group interaction patterns and their relationship to the social system. When teaching sociology to medical students, one simply selects those readings which utilize research findings drawn from medical settings like the psychotherapeutic interaction or the hospital, but the concepts are the same as those one uses for the sociology graduate student. In this particular case, the major adjustment required of the sociologist-turned-medical-educator has been in terms of *whom* he teaches and works with rather than *what* he teaches or investigates.

III

The Baylor case is illustrative of one of two types of situations in which the sociologist, as a *teaching* member of the faculty, is most likely to find himself: (*a*) the department of public health and preventive medicine and (*b*) the department of psychiatry.

Public health and preventive medicine have fostered the collaboration of sociologists most specifically in the fields of population and demography. In their recent detailed report, the Conference of Professors of Preventive Medicine stressed the importance of epidemiology for the study of medicine and extended a warm invitation to the social sciences to join into equal status in the medical school faculty (10). However, in recent cases where they have experimented with "learning by doing" in so-called human relations laboratories, it would appear that they are uncertain about the contribution of the sociologist. Odin Anderson, a sociologist who worked in a department of public health, expressed the opinion that, concern-

ing the application of sociological knowledge to the individual patient and to the interactional situation between the doctor and patient, the social worker should assume most active responsibility (1). This opinion would seem to be shared by professors of preventive medicine who, in existing programs of this type, have relied mainly on social workers rather than sociologists for collaboration.

A good summary view of the attitude of psychiatry toward the sociologist in medical education is found in the final report of the 1951 Conference on Psychiatry Education (11). This report notes the general tendency of medical education to provide for psychiatric teaching in all years of the medical course. Thus, psychiatry, traditionally defined as one of the clinical sciences, is placed in the unique situation of being the only clinical department which has responsibility for teaching its own basic science. This increase in the amount of responsibility for teaching preclinical courses in psychiatry appears to be directly related to the acceptance of behavioral scientists as teaching colleagues in departments of psychiatry.

The report of the Ithaca Conference of 1951 further demonstrated its approval of this type of collaboration by including a full chapter, written by Norman Cameron, which suggested an outline for a course titled, "Human Ecology and Personality." The sociologist was assigned a major role in the teaching of this course, in collaboration with the psychologist and psychiatrist. More recently, the Committee on Medical Education of the American Psychiatric Association published an outline psychiatric curriculum, in which a responsible place was suggested for the social scientist (6).

By and large, it would appear that the orientation of psychiatry in this trend toward the sponsorship of a pre-clinical course in behavioral science is favorable to the didactic type of educational method typical of graduate academic training.

IV

Cornell may be cited as an interesting exception to the prevailing pattern. A team of sociological researchers is now solidly established in the Department of Medicine in association with the Cornell Comprehensive Care and Teaching Program (C.C. & T.P.). Even though their teaching role is not explicit in the type of appointment they receive, they undoubtedly function as teachers. Their status is secure and respected. They are a regular part of the conferences of students and staff. Nevertheless, one may question why this program which, like the Western Reserve experiment places such a heavy emphasis on the importance of psychosocial factors, has yet to make a formal commitment to the establishment of a full-time faculty position for the sociologist.

The explanation may be essentially one of timing. Developments in this direction are relatively new from both the medical and sociological point of view. On the other hand, there may be the opinion that the necessary and relevant content from sociology and anthropology can be learned and then relayed to medical students by physician-educators, or by medical psychologists and social workers. This raises the question of *consultation* versus *colleagueship*. In recent conferences among psychiatrists, the same question has been raised searchingly, namely, *can the knowledge and skill from sociology which is relevant to medicine be learned sufficiently well by physicians for effective incorporation in their teaching, or must sociologists (and anthropologists) themselves be joined to the medical faculty?* In other words, is the appropriate role for the sociologist in medical education that of a skilled consultant or is it that of a teaching colleague?

The joint appointment has been used as a compromise solution to this problem, allowing the sociologist to function both as a colleague on the medical faculty (part-time) and as an "outside" consultant to be called upon as the situation demands. For the

sociologist, it allows the continuation of the institutional identification to which he is most accustomed. Despite its apparent advantages, however, the joint appointment lends itself to two possible dangers. First, there is the conflict which arises from membership in two highly demanding institutions at the same time. Inevitably, it would seem that the sociologist will find himself forced to concentrate on one or the other position, thereby becoming in fact either medical colleague *or* consultant. Thus, the compromise purpose of the dual appointment would be neutralized. The second danger arises from the inherent ambiguity of working with one foot in one institution and one foot in another institution. When a sociologist is a full-time member of a medical school faculty, the medical school is forced through its responsibility for promotion and salary to assess deeply the importance of this new teaching position; it will not be tempted, as it might be in the joint appointment, to postpone its own judgments and decisions, or perhaps to pass the buck to counterparts in the liberal arts college. The joint appointment thus may be interpreted as best suited to the situation where a medical school is primarily interested in the sociologist as a consultant, *not* as a colleague.

The extreme answer in the direction of colleagueship would be an autonomous department of social science in the medical school. Stainbrook has argued in favor of creating such a department (13). However, given the present power structure of the medical faculty, with its highly independent departments and its intense competition for curriculum time, one may question whether a new department for social scientists can survive except in a very marginal status position. There are already enough weak departments in the medical school. Is it the better part of wisdom to create another? The exception is the new school, such as one finds in Kentucky. Here, beginning from the very start with a climate that accepts fully its value, a department of behavioral science such as they have created has a good chance of success.

V

Where does that leave the sociologist as a medical educator? The answer would seem to be that he is placed in a highly unstable but exciting position which is appropriate to the innovator. He is privileged, in comparison with his sociologist colleagues, with less burdensome teaching duties, more financial support and encouragement for research. He is burdened, on the other hand, with a measure of isolation and loneliness that seems part of ploughing new fields.

His most pressing problem is probably what Stainbrook calls "the problem of relevance" (13). In other words, what concepts, theories, and methods in sociology are most directly relevant for medical education, and how can they best be communicated to medical students? There is sufficient variation in where he is placed in the social structure of the medical faculty to allow the sociologist to test what, if any, difference the departmental setting makes to his teaching effectiveness.

CONCLUSIONS

Essentially, the sociologist is a basic scientist, concerned with expanding the boundaries of our understanding of human behavior. This is the core of his reason for professional existence. As he is being introduced into medical education, however, the sociologist is, to a large degree, still being utilized as a semi-expert for specialized knowledge like demography, or as a resource consultant in the clinic. To a perceptible but still small degree, he is assigned a place analogous to the basic scientist of preclinical subjects like physiology.

Modern medical education has developed a new awareness of the importance of the acquisition of attitudes and values as compared with the acquisition of knowledge in the total learning process. Appropriate attitudes, particularly toward patients, have become the most coveted target of medical

education. How, we may ask, can the sociologist, from his place completely outside the clinical practice of medicine serve as a model for and as a conveyer of attitudes and values that are important in the education of the physician? The answer which is offered in this paper is that the sociologist best serves in the role of medical educator as a basic scientist. Working full-time as a teacher and researcher, he can challenge the student with the quality of his problem-formulations and investigation methods. He can convey, if successful, the importance of perceiving human behavior in terms of *what people do* rather than *what they should do*. If, in the eyes of the students, he is perceived primarily as a basic scientist, his potential function as a consultant to the clinical team will be greater, it is asserted here, than if primacy is given to his clinical function.

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Teaching Medical Students the Principles of Mental Health

JULIA CHESLER, M.Sc., M.B., B.Ch.
Department of Social, Preventive and Family Medicine,
University of Natal, Durban, South Africa

The problem of medical education is not simply to train more doctors, but to train doctors who can help men and women to understand and live with themselves at a time when man's lack of understanding of himself and his misuse of his own powers has become a threat to civilization (11).

In a report prepared by a working party of the Council of the College of General Practitioners, the importance of psychological medicine in general practice is stressed (6). It maintains that to miss psychological illness is just as bad as to misdiagnose organic disease and may lead to even greater unhappiness. "So much of medical teaching is concerned with organs and tissues that students, their teachers, and family doctors sometimes lose sight of the patient as a person whose anxieties, fears, griefs, rages, guilts, and inadeqate relationships with other people can, and do, make him ill." All medical training should convince students that the person who is ill is as important as the illness from which he suffers. The report maintains as well that psychological illness is one of the most pressing matters confronting the medical profession today. In the light of this the teaching of psychological medicine (meaning by "psychological medicine" the management of neurotic and psychosomatic difficulties rather than the formal disease entities of psychosis and dementia) (3) to all future practitioners is a matter of importance.

To avoid semantic confusion between the narrow specialty of psychiatry, concerned mainly with the study and care of those suffering from the graver forms of mental illness, and the modern concept of psychiatry as an essential part of the broad science of human biology, it is best to refer to the latter as "mental health."

There is almost universal agreement that the medical curriculum must be enriched by placing greater emphasis upon the problems which the individual has to meet in adapting himself, on the one hand, to his internal needs and, on the other, to the demands of his environment. Though there are undeniable difficulties of implementation, it is accepted as a goal toward which we should work.

Implicit in this goal is the integration of the principles of psychodynamics and mental hygiene with the disciplines taught in the medical school. It would seem desirable and possible that mental health teaching should be integrated with that of every department.

The training of a medical student is like the weaving of an intricately patterned fabric—each disparate thread and distinctive color contributes to the design and strength of the whole. Important threads are those concerned with the social determinants of health and disease, the expanding sphere of preventive medicine, and family practice. Mental health is an integral element of each of these three aspects of Medicine.

Teachers of all subjects who are aware of the importance of mental health can keep it

prominently before their students in relation to the subject they are teaching. They can guide the student to be aware of the many influences which affect the individual in sickness and health, such as the physical environment, nutrition, occupation, interpersonal relationships, and emotional conflicts.

This paper will discuss how the medical student may be effectively introduced to his future functions in the prevention, recognition, and therapy of mental ill-health. The concepts, skills, and experience he must have to be able to carry out these functions will be dealt with.

The question will be raised of the desirability and necessity to select students for this part of their training, and to adapt the training to the individual tempo of the selected student.

Preparation for the teaching of mental health.—If the teaching of mental health in medical schools is to be intelligently planned, so too must premedical education. It has become part of educational tradition that a knowledge of the basic sciences should be a prerequisite for entry to a medical school (14). A radical revision of preclinical education has been advocated so that "from the first, the mechanistic, non-human must be balanced by equal emphasis on the human" (7).

If medical treatment is to become comprehensive, the teaching of medicine, from its very beginning, should be kept as close as possible to the person, the total human being (11). During his undergraduate years the student should get an orientation of this sort which will last his lifetime. To this end he should see and study people from the first year on. There are psychiatric implications in the care of every patient.

The teaching of mental health must be based on sociology, social anthropology, and psychology. The design and the effects on the students of a psychology course in the medical curriculum have been described by Albino and Yule (2), who were able to recognize psychological factors and to give proper emphasis to the role of attitudes in health behavior. "In general discussion, they moved easily between psychological and physiological language. Finally they were well acquainted with interviewing methods, and it is unlikely that these students will, as is so often the case, substitute an interrogation for an interview. . . . We have no doubt that these students will find it easy to grasp the concepts of psychiatry and social medicine, and that they will understand and inquire into the role of psychological factors in a particular case more easily than if they had not taken the course."

Student selection.—It is pertinent to discuss, at this stage, an important aspect of medical education, namely, the possibility of selecting certain students according to their aptitude, maturity, and stability, for more intensive training (4). All medical students should be taught as much as they can be expected to assimilate, and some of them should be offered more. If selection is acceptable, one could teach the selected few much more than the unselected multitude. Selected students could be offered an opportunity to develop simple psychotherapeutic skill at their individual tempo. Training in psychotherapy requires a considerable change in the trainee's personality and is acceptable only by a certain proportion of people.

From an early age students have been trained in subjects where reliance can be put upon reason and intelligence as instruments of learning, but the facts of psychology demand important additional qualities for their understanding (14). For understanding a particular person simple theory is not sufficient. One must have, as well, sensitivity, experience, and insight. The student must understand and, therefore, face the hard, unpalatable fact that human beings are far from wholly rational in their behavior, are very much at the mercy of their emotions in all their actions and attitudes, and their thoughts are determined more by their wishes than by their reason.

Some medical students are immature at the time of training, and, since a prompt change to adulthood cannot be demanded, they need to be selected for a method of

training spread over a long period so as to reduce their exposure to serious strains and hazards. Those students whose personalities are precariously balanced and who have to defend themselves against any change are unsuitable for this kind of training.

Presenting the problem to the student.—The extent and effects of mental ill-health in terms of morbidity and absentee rates, hospital admission rates and costs can be presented to the student so that he may become aware of the importance of this aspect of his training. It can also be indicated to him that the problems of mental health will impinge on most spheres of practice. The College of General Practitioners Report gives 30 per cent as the generally accepted percentage of people reported with psychological illness in any general practice. The opportunities for the practitioner in antenatal, mother and child welfare clinics (9), and in school and industrial medical services (16) to introduce preventive psychiatric measures can be outlined and stressed.

For the student to be adequately prepared to deal with the mental health problems which will confront him in his graduate career he must be introduced to some basic theoretical concepts, acquire certain practical skills, and be given opportunities for supervised experience in dealing with selected cases.

Basic concepts.—The Group for the Advancement of Psychiatry state that "modern psychiatry contributes to a more comprehensive knowledge of growth and maturation; of the adaptation of the individual in the family and in society; of the ways in which biological, psychological and social forces combine to shape human experience and personality" (11).

The concepts which contribute to an understanding of mental health and provide the basis for prevention and therapy, both at the individual and community level, can be considered under the following headings.

1. Developmental: This covers normal growth from birth to old age. The criteria for normal personality development may not be as easily definable and measurable as those for physical growth. Although they may be expressed in qualitative terms they are in no way less important in the clinical assessment of the individual as a whole person. The student needs to learn what the major and common personality disturbances are and how they may appear to the practitioner.

2. Psychodynamic: This will help the student to understand how interpersonal relationships determine behavior patterns. The present interpersonal relationships and behavior of an individual are both determined by and express their previous interpersonal experiences. The genesis of psychological conflict becomes clear. The major and common types of psychological conflict and the ways in which they may become evident to the practitioner can be discussed.

3. Psychosomatic: The student can be introduced to the growing body of experimental and clinical evidence of the emotional determinants of somatic disturbances. His thinking on illness can be broadened so that he can perceive it as a fruitless struggle by the patient to resolve his conflicts. The student should be helped to appreciate that every organic illness has its natural psychological component, mild or severe. Some symptoms are particularly prone to cause reactive anxiety or depression, namely, pain, bleeding, a lump, failing vision or hearing, or sexual impotency (6).

4. Cultural: Into his understanding of mental health the student will need to incorporate the influence of cultural factors. As a graduate there is the likelihood that he will practice in cultures or sub-cultures different from his own. He will have to understand their criteria of mental disturbance. There are culturally acceptable modes of expression of mental disturbance. Attitudes to mental disturbance can vary appreciably from one subculture to another.

5. Epidemiological: The student can be introduced to this method of studying mental ill-health in groups. He can begin to realize the contribution to these disorders

of genetic, biological, and social factors and the consequences of these factors for prevention and therapy.

6. The doctor-patient relationship: The psychodynamic interpretation of behavior presents to the student mainly the pathological components of interpersonal relationships. He can be directed to recognize that many human relationships have therapeutic possibilities as well. He needs to examine the nature of the doctor-patient relationship and to realize its potentialities as a therapeutic tool (5). He has to appreciate consciously that his own personal convictions may become involved in his attitude to, and handling of, a patient. That a not inconsiderable part of a patient's organic and emotional state may have been iatrogenically influenced is a situation which both teacher and students will have to learn to face with honesty and humility. This will involve, on their part, a considerable though limited change of personality.

7. New therapeutic, preventive and promotive trends: Associated with the increasing attention being given to mental health, trends are developing which can be brought to the student's notice so that he may be ready to associate with these in his practice. There is no great virtue in teaching medical students simply what is done currently in general practice. Educators must aim to teach what they believe should be done by the future generation they are training (8).

The present trend is to prevent and treat mental illness within the community, i.e., where the illness appears, and, if the patient must be hospitalized, to treat him early and return him quickly to his own community (15). The nature of mental hospitals is changing from that of the traditional isolation and prolonged custodial care to the open-door system with increased freedom and autonomy and socialization of patients in contact with the outside community (12, 13). Day and night hospitals aim to maintain full family and community contact during treatment and to help to keep selected patients in employment. Shorter but nonetheless effective methods of psychotherapy have developed (1), and group methods of psychotherapy have been devised (10).

Some necessary skills.—The principle of selection would apply especially to the acquisition of particular skills and the types of experience made available to students. In the series of skills and experiences which will now be discussed the level of student achievement must be expected to show marked individual variations.

Balint claims that "all medical students should acquire enough knowledge of psychology and psychopathology to recognize whether the patient is labouring under a psychological conflict" (4). In the training of students attention will need to be given to each of the skills of observation and interview which contribute to the formulation of this diagnosis. Gross deviations from acceptable norms in the appearance and behavior of patients will be obvious to all students. Some students can soon become sensitized to more subtle indications of, for example, tension and anxiety, overdependence, or repressed femininity. The ability to reach a diagnosis requires the capacity to identify with the patient, to become temporarily involved in his problems, to listen actively, and to encourage and assist in the expression of the emotional components of the problem. Students need to develop confidence in their ability to obtain biographical histories from patients. The student can be trained to attempt to include in his interviews the major areas of importance for the assessment of emotional adjustment. These are related to work, society, sex, and interpersonal relationships, particularly those existing within the family.

A second, more difficult, step in the psychological diagnosis is to ascertain the nature, extent, and intensity of the conflict and at the same time the extent and power of the healthy part of the personality. Not all students can be expected to achieve this much or to be able to outline the needed therapy.

Experiences to which students can be exposed.—Having dealt with the concepts

which assist the student to understand mental health and the skills which assist him to diagnose the presence of a psychological conflict, we can now consider the varieties of experiences to which the student can be exposed in his training. The desiderata of this experience can be considered under three headings—contact with all age groups in their social context, presentation of major and common stress situations, and introduction to supplementary health and welfare agencies and their personnel.

1. Contact with all age groups in their social context: Experience of the degree of variability which can exist within the accepted limits of normality is particularly important in assessing emotional behavior. The manifestations of psychological conflict can be differently expressed at various age levels, e.g., temper tantrums in infancy, truancy at school, accident proneness at work or at home, impotence. It would therefore be desirable for the student to have an experience extensive enough to allow him to develop his skill in interviewing and assessing the behavior of cases ranging from infants to old people. Neither the tutor nor the student should disregard the learning experience that the emotionally healthy or only very mildly disturbed person can provide.

2. Major and common stress situations: These can be considered under two aspects —namely, those which inevitably occur in practically all life spans and other special situations. In the first group would come those associated with normal developmental situations such as courtship and marriage, parenthood, weaning, birth of sibs, school entry, puberty, work, the climacteric, and old age. In the second group are those associated with special situations such as maternal deprivation, illness, accident and disability, and bereavement. Together, these form the matrix from which will arise most of the psychological problems confronting the practitioner.

3. Introduction to supplementary health and welfare agencies and their personnel: An outline of the types of agencies and personnel who are engaged in different aspects of mental health work can be presented to the student. The objective would be his understanding of the kinds of service they render. When possible, direct contact with the agencies and their personnel should be made, both at the individual case and community level. The agencies could include, for example, child guidance clinics, those dealing with the mentally handicapped and epileptics, social welfare departments, marriage guidance societies, and Alcoholics Anonymous.

SUMMARY

The medical student needs to be prepared for the management of neurotic and psychosomatic difficulties in family practice. Almost all teaching departments can contribute to this aspect of medical student training. The objectives are to teach the student the significance of emotional experience in health and disease, the meaning and management of the relationship between patient and physician, and the possibilities of medical care which take account of vital psychological and social factors.

The issue of selecting suitable students for training in simple psychotherapeutic procedures needs to be raised. Some of the basic concepts, skills, and experiences which are necessary for this aspect of medical student training are outlined. The student can be introduced to paramedical and social agencies and personnel engaged in the field of mental health with whom he can cooperate in his practice.

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MEDICAL EDUCATION FORUM

Editorial

STUDIES AND RESEARCH IN MEDICAL EDUCATION—A NEW PROGRAM

When the first medical school is opened on the moon, we like to think that representatives of the A.A.M.C. will be consulted regarding curriculum, student selection, administrative relations, and, of course, finances. The pace of development in medical education today seems to be rather similar to that in missiles and rocketry. We too recognize that progress is based upon sound research, whether in medical education or celestial mechanics.

Although we believe that financial problems are immortal, we hope that a 1990 medical school may avoid some of the problems that beset us today. Studies on medical education today can have great significance for present and future medical education.

Fortunately, Ward Darley has been a staunch advocate of the need for fact-finding studies. Although for a time it seemed that he was a voice crying in the wilderness, his lamentations at least reached New York and Battle Creek, where they were heard by the Commonwealth Fund and the Kellogg Foundation, respectively. Very generous grants from these good friends have supported the establishment of a program for research in medical education at the headquarters in Evanston. Dr. Lee Powers is directing the program.

The information already flowing into the research desk is so timely that we are establishing a page or two for data and facts culled from these studies. We look forward to the time when more formal reports will be available for publication in the *Journal*.

JOHN Z. BOWERS, M.D.

Datagrams*

WHAT'S HAPPENING TO OUR MEDICAL SCHOOL APPLICANTS?

The total number of medical school applicants seems to be decreasing in the face of increasing enrolments and increasing graduates from colleges:

Year	Total Students Enrolled in Colleges	Total No. Graduating	Total No. Med.-School Applicants	No. Medical-School Applicants Represented as Percentage of College Graduates
1950	2,296,592	433,734	22,279	5.1
1957	3,068,417	340,347	15,791	4.6
1958	3,258,556	365,748	15,172	4.1

The percentage of students entering medical schools with an average grade of A has been decreasing:

College-Grade Average First-Year Medical Students	1950–51 (Per Cent)	1957–58 (Per Cent)
3.6–4.0 (A)	40	18
2.6–3.5 (B)	43	66
1.0–2.5 (C)	17	16

There are also some disturbing trends in the MCAT scores as reported by the research division in the applicant study appearing in the April issue of the *Journal of Medical Education*, "... scores of all first-time applicants for each of the years 1952–57, clearly show that a decline in quantitative aptitude and scientific skills as measured by MCAT has occurred, accompanied by a rise in verbal aptitude." However, preliminary studies of the 1958–59 freshman class showed significant increases in both quantitative and science scores, and the average scores for applicants to the 1959–60 class are showing similar trends.

The percentage of students withdrawing during their freshman year in medical schools increased from 5.5 per cent in 1954–55 to 7.8 per cent in 1957–58. Actually, fewer students were available for the second-year class from the 1957–58 class than from the 1956–57 class.

Year	Total Enrolled in First-Year Class	Number Withdrawing	Percentage Withdrawing	Students Available for Second-Year Class
1954–55	7,576	418	5.5	7,158
1955–56	7,686	480	6.2	7,206
1956–57	8,014	544	6.8	7,470
1957–58	8,030	629	7.8	7,401

The number of students withdrawing, both in poor and in good standing, increased steadily since 1954:

Year	Poor Standing		Good Standing	
	No.	Per Cent	No.	Per Cent
1954–55	257	3.4	161	2.1
1955–56	324	4.2	156	2.0
1956–57	368	4.6	176	2.2
1957–58	448	5.6	181	2.3

* Submitted by the Division of Operational Studies of the A.A.M.C. Source of information will be furnished on request.

SAMPLING OF ACADEMIC DEFICITS

Budgeted academic vacancies in the United States medical schools have shown an alarming increase in recent years. For instance, budgeted vacancies in 1957–58 were almost twice the number reported for 1956–57—331 as contrasted with 619.

More startling, however, were the results of a sample questionnaire relative to the number of additional faculty needed, over and above vacant budgeted positions, to teach medicine as it should be taught today. Twenty schools (12 tax supported and 8 private) reported an average need of 50 additional faculty members—43 junior and senior faculty members in traditional departments and 6 or 7 faculty members in the so-called "new disciplines"; i.e., physical medicine and rehabilitation, biophysics, biostatistics, psychology, etc., as well as 80 additional supporting personnel per school, such as the administrators, clerks, and technicians. Converted to dollars on the basis of prevailing average salaries, approximately $500,000 per school would be needed to hire these people. This is to be compared with a dollar need of $250,000 per school reported by A.A.M.C. in 1953 (*J. M. Educ.*, February, 1953, by Dr. Ward Darley) to correct academic deficits. Considering the change in demands on schools and problems resulting from increased research, etc., this jump to $500,000 per school may be a reasonable estimate.

MEDICAL SCHOOL CONSTRUCTION NEEDS

In answer to a recent A.A.M.C. questionnaire, the deans of 78 fully-developed four-year United States medical schools reported that a total of $1,230,774,000 has been spent since 1948 on the construction of teaching, research and hospital facilities. Of this total, $693,774,000 was spent for facilities on which no federal funds were expended and $537 million on facilities which included $133.5 million in federal funds in their total construction budgets.

The 78 deans also reported a need for approximately $293 million for new construction and/or renovation of teaching facilities. This does not include their estimates of construction needs for research facilities or hospitals.

If funds were available, 16 schools indicated that they could start immediate construction on facilities costing $41.5 million; thirty-six schools could begin construction estimated at $184.5 million by 1960; and by 1961 an additional 14 schools could begin construction estimated at $48 million. Of the remaining schools, seven indicated no immediate needs, and five could use $19 million between 1962 and 1966 for teaching facilities.

The deans estimated that 850 additional freshman medical students could be accepted by 1965 if funds were made available soon for this construction and renovation program.

Address

MAJOR CHANGES IN MEDICAL EDUCATION DURING THE PAST FIFTY YEARS*

WILLARD C. RAPPLEYE, M.D.†

The base from which the remarkable evolution of medical education in this country started needs a brief comment. Physicians in the early American Colonies were usually clergymen for whom medicine was a companion calling. From necessity the only method of training doctors was by apprenticeship under practitioners or the clergy. Gradually, a few colleges created medical divisions, but most of them were proprietary institutions which were merely permitted to use the name of the college without the latter's assuming any educational supervision or financial responsibility. There was no semblance of scientific training in the programs.

In the rapid expansion of the country the population became widely scattered. Communication and transportation were inadequate and uncertain. Doctors for local communities were needed before the means of educating them were available. With only a few exceptions there were no university opportunities for the study of medicine such as those that existed in Germany, Holland, and Denmark. There were no hospital facilities for such preparation comparable to those in Great Britain and France. The apprenticeship system was merely expanded to meet the pressing need. Early in the last century less than 10 per cent of the physicians in this country were graduates of medical schools. More than 80 per cent had never even attended lectures in a school of medicine.

Some of the physicians who desired to improve conditions organized medical societies which attempted to differentiate between the competent and the incompetent. These societies set up certain standards of preceptor training and examination for membership. In a number of states these societies were given the privilege of granting the degree of Doctor of Medicine, although the few universities at that time awarded the degree of Bachelor of Medicine.

Groups of physicians began to band together and organize themselves into "medical faculties." They secured charters from the state legislatures which gave them the right to conduct medical training and to grant degrees. For all practical purposes there were no entrance requirements, the course was usually 10–20 weeks in length for 1 year (sometimes for 2), the facilities often consisted of an improvised lecture room and a demonstration laboratory, there was no library, and the instruction was by a few didactic lectures. All told, about 460 medical schools came into existence by fission, fusion, and spontaneous generation. By 1900, there were 160 still in operation, including the few university departments.

* Read at Congress on Medical Education and Licensure, Chicago, Illinois, February 10, 1959.

† President, Josiah Macy, Jr. Foundation, New York, N.Y.

At the opening of the century a number of Americans went to Europe for their medical education or for postgraduate training. The prestige of university study abroad and the inspriation of the teachers of scientific medicine in the European clinics and laboratories soon had a favorable effect on medical practice and education in this country. In 1892, Harvard University had increased the length of its medical course to 9 months of instruction for 4 years and required written examinations before its degree was awarded. The Johns Hopkins Medical School was founded in 1893. The graded curriculum was adopted by the leading schools in 1899.

The American Medical Association collected and published statistics on the medical school situation in 1900. In 1904, the Council on Medical Education was appointed. This Council began the inspection and classification of medical schools. It called a national conference in 1905 which formulated a minimum standard of professional education. Only five of the 162 schools in existence at that time required any college preparation for admission. In 1907, a report on the personal inspection of all the medical schools in the United States was submitted.

At the fifth annual conference, in 1909, a report of a Committee on the Medical Curriculum comprising 100 prominent medical educators and practitioners was presented. It was the unanimous opinion of the Committee that an educational survey of the whole problem was needed. This resulted in the Flexner study. A requirement of some college work for admission had been instituted in 85 of the 96 medical schools by 1909, and seventeen required 2 or more years. Eleven others had announced that the 2-year requirement would become effective in 1910.

The monumental report by Mr. Abraham Flexner in 1910, which was prepared under the auspices of The Carnegie Foundation for the Advancement of Teaching, gave an objective appraisal of the conditions and invaluable publicity to the efforts to improve medical education. It also stimulated universities with medical schools and certain philanthropists to the realization of the national importance of such professional education and the need of substantial financial support for its improvement. In regard to the unsatisfactory conditions in the schools generally, the recommendations of the Council on Medical Education were being rapidly translated into legal requirements for licensure to practice. The statutory specifications and resultant regulations of the different states were highly effective in forcing medical schools to meet the accepted standards and in eliminating many of the proprietary and commercial institutions. The second significant step was the development of medical education on a university basis to which reference will be made later.

The volume and diversity of the regulations and especially the binding character and strict interpretation of some of the legal requirements led shortly to great rigidity and overcrowding of the curriculum. The enormous increase in knowledge of the diagnosis, treatment, and prevention of disease stimulated faculties and licensing boards to add new subjects, instruction, and examinations, with consequent overcrowding of the medical course, stress on laboratory manipulations and techniques, over-emphasis on unimportant details, poor correlation of instruction between departments, and insufficient emphasis on the sciences as they relate to human problems. The difficulties of eliminating obsolete material and adjusting the requirements of licensing examinations to the changes added to the confusion. The crystallization of many rules handicapped the application of sound methods of education and made much of the medical training essentially vocational.

These matters had been discussed frequently at the meetings of the Association of

American Medical Colleges, the Council on Medical Education and Hospitals, and the Federation of State Medical Boards. There was growing reluctance on the part of universities and medical schools to approve or apply further regulations until some of the basic principles involved had been defined. Reacting to the situation, the Association of American Medical Colleges organized a Commission on Medical Education in 1925, comprising men familiar with the educational, scientific, professional, public health, and regulatory problems involved.

The immediate need was to secure relief from the restraint and burden of external regulations and to stimulate experimentation in medical education. At the first meeting of the Commission in October, 1925, it recommended to the Federation of State Medical Boards and to the Association of American Medical Colleges that a truce of a limited number of years be established during which any member of the Association might experiment with medical education without penalty to its graduates. This suggestion was adopted by both organizations. A revision of the constitution and by-laws of the Federation in February, 1930, contains under Article II the following provision:

"In all matters of premedical education, courses of study, and educational requirements for the degree of Doctor of Medicine or its equivalent, the Federation recognizes the Association of American Medical Colleges as the standardizing agency for this purpose.

"The Federation regards as its proper function (a) the determining of fitness for the practice of medicine, and (b) the enforcement of regulatory measures."

The action by the Federation gave the universities freedom to correct the rigid, overburdened, and overstandardized curriculum and the responsibility to provide real professional education. A number of experiments have been undertaken in recent years in the endeavor to unify the entire medical school program itself and to integrate the professional school with general university education and with the social, economic, and environmental features of medicine.

The rapid evolution of the sciences basic to medical education had been making remarkable advances in the application of laboratory and quantitative methods to many phases of medical teaching and research. In view of recent developments, there has been a shift of the main axis of undergraduate instruction from anatomy, pathology, and surgery to biochemistry, physiology, internal medicine, and psychiatry, leaving graduate training in surgery and the specialties to hospital residencies.

The intensive instruction of all students in the principles of scientific accuracy, observation and exploration, inquisitiveness and understanding of the physiological, pathological, and chemical aspects of sickness and disease had a striking and favorable effect on the level of professional teaching. These developments and the expanding character of the medical sciences quickly led to specialization and a degree of isolation between subjects.

It was inevitable and highly desirable that the emphasis on quantitative methods and the scientific attitude would be extended into the clinical fields and form the scaffold on which real university clinical departments could be constructed. The development of one form or another of university full-time clinical departments in a number of schools, in addition to the rapid expansion of the medical science departments, explains in considerable degree the great progress of American medical education through emulation and sound leadership during the last 40 years. The widening fields and complexities of medicine required a better education of doctors, the training of clinical teachers, the conduct of clinical research and the direction and education of younger members of the staffs of both the

medical schools and the teaching hospitals. The growth of teaching services on the wards of the university-affiliated hospitals emphasized the necessity of creating and supporting university departments of clinical medicine and surgery which would allow at least a nucleus of the staff to dedicate all their time and energy to instruction and research.

Two general plans developed. The first was a gradual increase in the teaching, research, and hospital responsibilities of the clinical teachers which was reflected in the expansion of medical school and hospital facilities, better compensation, the employment of salaried assistants, technicians, secretaries, and other elements of a medical school department. In the beginning the professor usually kept his own office and retained his private fees. Later, as duties increased and he developed interests in teaching and research, it was natural that his work be concentrated at the medical school and teaching hospital. Here he was granted the privilege of seeing patients and retaining the professional fees. This plan was the basis of the geographical full-time system now in wide use.

The second plan was a more complete break from practice by the creation of strictly full-time university departments of medicine and surgery. It was first inaugurated at Johns Hopkins University in 1913 and has been implemented with various modifications in a number of schools. The original plan called for employment on a salary basis only. The professor was not expected to see private patients. Later when that plan did not work out satisfactorily, he was permitted to see private patients but not allowed to charge fees. This device proved unsatisfactory. A variety of adaptations of the original plan are now in use. The program served a highly useful purpose in stimulating the creation of academic clinical departments which replaced earlier methods of teaching only by practitioners who could give little time to problems of research and instruction.

Some of the developments in the clinical departments have led to a new series of challenges from the profession itself. Its recent efforts, partly through legislation, to regulate the methods of compensating teachers in medical schools and university hospitals have created serious problems especially in institutions dependent upon tax sources of support.

The role to be played by private practice income and fees from professional services rendered to insured patients emphasizes the present financial dilemma of the medical schools. The growing inflation adds to the disparity between the financial return to the academic teacher and the opportunities in other areas, particularly those in private practice. Signs have appeared in various places in the country indicating a shift toward greater hospital control and to concessions granted to the professional staff in view of the difficulties of most universities adequately to maintain their medical school programs. This is accompanied by the growth of public understanding and support of community health services of a wide variety, with which hospitals are so clearly identified.

The teaching institutions should be encouraged to employ full-time teachers and investigators under any reasonable plan satisfactory to the staff members and the school that will strengthen and elevate the quality of instruction, the improvement of patient care, and the level of research. They should have the support of the professional and hospital associations in their endeavors to maintain the quality of teaching which will insure a high degree of excellence in future generations of physicians. They should be free from hampering regulations of the medical profession or restrictive legislation which might interfere with their essential functions in a modern society. Systems of education succeed in the long run through ideas and the efforts of dedicated men, not by regulatory machinery.

The dependence of modern medicine upon the underlying sciences is clear and indicates

the great untapped reservoirs of knowledge that may be useful in controlling and preventing various illnesses and disabilities to which the human being is subject. There are no longer sharp lines of division or artificial water-tight partitions between the different sciences. Many of the major clinical departments in the universities have a number of non-medical scientists in these departments. This team work has been one of the great forward steps in recent years and holds promise of greater advances in the future.

The philosophy in the educational program has been shifted from the earlier ideas of teaching by the faculty to learning by the student who is the key to the whole effort. Anything worth knowing cannot be taught; it must be learned. The medical course itself is only the foundation for the necessary continuous self-education of the successful physician throughout his entire professional career. The concept regards the 4-year medical course as a unit rather than as a series of isolated subjects by integrating the basic sciences and clinical disciplines through correlation and combined clinics, joint instruction by several departments, comprehensive examinations, clinical clerkships, seminars, joint staff appointments, and other instructional devices. The program emphasizes instruction in group, family, and rural medical practice, the vital role of student research as a tool of education, the place of the basic medical sciences in sound clinical teaching and practice, the importance of the chronic diseases, aging, preventive medicine, rehabilitation, mental and emotional disturbances, the handling of emergencies, and the impacts of social and economic factors upon medical care, research, and teaching. The primary function of medical education is to create an environment in which well qualified students may acquire the knowledge, habits, and methods of study, basic skills, sound attitudes, sense of personal responsibility for patients, and an understanding of the professional, social, economic, and ethical principles that motivate the true physician.

Another feature of the present-day educational plan is to select self-starting, self-directing, and self-propelling students who have a broad cultural background who, under the guidance and supervision of skilled teachers, may secure the elements of a real education which at the professional level must always be largely self-education. In the instruction itself the emphasis is placed increasingly on the longitudinal nature of disease and the changes that occur in the individual throughout his entire life span rather than on the occasional acute illness or episode of disability.

While it is highly important that the purely intellectual talents of the student should be developed to the fullest, it is also vital that the qualities of temperament, human sympathy, and insight which are required for dealing with the manifold human problems of medical care should be emphasized. The physician needs an understanding of, and must be able to treat, the man as well as the disease. The objective is to produce upon graduation neither a specialist nor a physician who can render every type of professional care but rather one who, after a supervised hospital experience, is prepared to begin practice as a well rounded, competent, safe and conscientious family physician or to go forward into advanced work in a limited field.

The question of adequate preparation in liberal education for the needs of present-day medical education intoduces the complex problem of the length of time required to produce a physician. Telescoping the professional and the undergraduate college courses was a method used for a time. It is now being revived under new and propitious circumstances. The introduction of the longer hospital period of training plus the requirements of military service after graduation have intensified the challenge to reduce the long span of profes-

sional education. In the long run the most satisfactory solution may be not to interfere with the medical course per se, which is currently being broadened into the social as well as the basic sciences, but to strengthen and vitalize the period of secondary and college education as recommended in recent studies.

The preprofessional liberal arts period, which in the colleges that provide the highest quality of instruction reaches its culmination in the last year, should give the student an opportunity to understand, appreciate, and share the cultural heritage of our civilization. To curtail that opportunity, which comes only once in a lifetime, and limit the college segment for physicians largely to an abbreviated contact with a liberal arts preparation and a condensed curriculum in the basic sciences, supplemented by superficial acquaintance with a few social problems, may not serve the best purposes of the profession and, in the long run, of the nation. The adaptation of professional as well as true university education to the unique American structure of the undergraduate college is a major concern of higher learning at all levels.

Usually the university is regarded as having the obligation for the preparation of physicians. Today it can meet only a portion of that duty. A substantial part of the clinical education of undergraduate medical students frequently is provided in other than university hospitals. Two-thirds of the 12,626 approved internships and over one-half of the 31,665 residencies are in such hospitals. Although these appointments are primarily for training, the service features often are more prominent than the educational. The number of men and women in the internship and residency phases of present day over-all medical education and services in both university and non-university hospitals is 5 times the number of graduates each year from the medical schools.

A large part of medical education in America is actually under hospital supervision and guidance which makes that institution a vital part of the whole educational system of medicine and a vehicle of great value in research efforts and the community application of new knowledge regarding health and disease prevention. Fortunately, many of the non-university hospitals now have modern laboratory and other facilities and professional staffs of excellence and good training, some of them on a full-time basis, who would be able to give a high quality of instruction to medical students, to house staffs and practicing physicians if given the opportunity and incentive. A large reservoir of potential training opportunities exists which might be utilized through proper educational leadership and guidance.

The present high quality of medical education has been achieved through the contributions of dedicated teachers and investigators and through the financial support by universities, foundations, alumni, philanthropy, hospitals, and taxes. Yet the amount of money spent annually represents only 1 per cent of the total expenditures for health services in the country and even includes the cost of staffing numerous hospital services which, at least in part, should properly be supported from other than educational sources. One fortieth of 1 per cent of corporate profits of American industry before taxes would be sufficient to cover the teaching deficits of the 85 medical schools. Private practice and medical insurance fees are helping in a number of instances to maintain the clinical staff. More financial support from various sources is urgently needed if the obligations of medical education as the essential feature of an adequate health service of the nation is to be maintained.

It is well to emphasize the life-time program of the physician. His entire career is in

one piece, it is a way of life. The premedical college period, the medical course, the hospital internship and the residency, the continuation education of the practitioner, whether family doctor or specialist, the teacher, and the investigator are all phases of a life-long dedication. This philosophy of the long-term nature of medical education and its organic relationship to university and secondary education and to the society it serves explains in part the continuous efforts of medical faculties to improve teaching methods and procedures. In view of the diversity and range of professional education, the statement made a few years ago still applies: "It is becoming increasingly apparent that there is need of coordination of the various phases of medical education and better definition of the several areas of responsibility of national and state agencies, universities, hospitals, and professional bodies dealing with portions of the whole program if medicine in this country is to meet fully its obligations." The programs of the health services and of medical education for the near future are indicated by current trends in these fields. The major changes in medical education during the past 50 years and particularly during the last two decades provide a basis for prediction of the future direction in which these essential elements of our society are moving.

Reports

THE TEACHING OF MEDICINE AT LOVANIUM UNIVERSITY

J. VINCENT, M.D., AND R. BORGHGRAEF, M.D.
Dept. of Anatomy and Histology, and Dept. of Physiology,
Lovanium University, Léopoldville, Africa

It has not been 50 years since the development of the Congo was entrusted to Belgium by their king, Léopold II. At that time, European penetration was still recent, since Léopoldville, now the capital of Belgian Congo, had been founded by Stanley in 1876.

The first physicians to establish contact with the populations of the Congo Basin were confronted with many endemic diseases. In many of these not even the pathogenic agent was known, much less the manner in which they were transmitted. Sleeping sickness, malaria, and dysentery caused terrible ravages. It is, therefore, not surprising that the government's first concern was to organize the fight against these scourges. Thus, the greater part of the medical corps found itself engaged in practicing mass medicine rather than individual medicine.

Physicians were mostly in government service, aided by European medical auxiliaries. They were soon able to establish a true map of pathology in the Congo, and they took up the fight against the most widely spread diseases. They received efficient aid from missions and health services which soon were organized by private companies settled in the country.

The efforts of those pioneers were rewarded. After half a century, trypanosomiasis has become a rare disease; malaria is clearly receding, and the great centers of the country are now almost completely free of infected anopheles; onchocercosis has disappeared from the Léopoldville region, and cases of yellow fever are exceptional.

It soon became evident that the medical staff sent from Europe could not suffice for the huge task which confronted it. It was, therefore, of the greatest importance to bring about participation of the native population in the sanitation of their country and in any health efforts undertaken by the government. So-called *écoles d'infirmiers* (nursing schools) were established to train Africans to relieve European nurses (mostly nuns) and to assist the physicians in their sedentary or ambulatory work.

Ten years later, a second step was taken: it had become possible to train medical auxiliaries whose education consisted of 2 preparatory years, 4 years of theoretical medical studies, and 2 years of hospital practice. These assistants are able to examine a patient, assure the functioning of dispensaries in the interior of the country, give urgent treatments, follow the evolution of a disease, and lead a team of sanitary inspection.

Among the schools for medical assistants we mention particularly that one which was in a way at the origin of the Lovanium University at Léopoldville. It was founded, through the initiative of the medical staff of the University of Louvain, in 1938 at Kisantu, 120 km. from Léopoldville, in the proximity of an important Catholic Mission. This center, which at that time already had a hospital and a residence for students, has grown considerably

since then, adding to its establishments technical schools for agriculture, administrative and business sciences.

In 1948, the decision was made to institute direct teaching on the university level. The "Centre de Kisantu" became the "Centre Universitaire Congolais Lovanium," the name *Lovanium* indicating clearly the debt of the young Congolese institution to the 5-century-old University of Louvain.

The *Centre Universitaire* was to become the starting point for Lovanium University. It was deemed preferable to construct the latter in the immediate surroundings of Léopoldville, and foundations were laid in April 13, 1953. Its first academic year began October 12, 1954.

Two years later, the Government founded in Elisabethville, in the Katanga, at the opposite geographical extremity of the country, a second Congolese University. Thus university instruction was born in Belgian Africa.

In a period of less than 5 years, Lovanium University of Léopoldville became a vast complex of buildings. Built on top of a sand hill, it overlooks the town, which spreads out along the banks of the Congo river with its impressive precipices and rapids.

Lovanium University keeps in close contact with that of Louvain. Its administrative council is presided over by the rector of this Belgian University. However, the Léopoldville institution grants its own diplomas and basically is completely independent from the University of Louvain, although the latter offers to her younger sister all the resources of her experience and transmits to her the fundamental universitary traditions.

The academic staff is appointed by the Administrative Council of the University according to the same criteria as in Belgium. Budgets are submitted to the Government, which grants subsidies varying between 50 and 80 per cent of the installation and running expenses.

Lovanium University has Faculties of Theology, Law, Medicine, Philosophy and Letters, Science, Political, Social, and Economic Sciences; also Schools of Applied Psychology, Engineering, and Agronomy.

The Faculty of Medicine occupies an important place within the University, which shall be presently discussed.

The medical curriculum has been established according to the requirements of Belgian law. It is indeed important that the diplomas granted by the young Congolese University be recognized on an equal footing with those granted by the four Belgian Universities. Of course, certain adaptations of the medical study program had to be made, especially concerning courses of parasitology, hygiene, and tropical pathology, which are more developed here than they are in Belgium.

Half of the students' time is taken up by lectures, the other half by practical demonstrations and exercises. In brief, medical studies cover 7 years after completion of high school: 1 year of sciences (including philosophy, physics, chemistry, botany, and zoology); 2 years of *candidature* (preclinical) in natural and medical sciences, the accent being on anatomy, histology, physiology, and biochemistry; and, finally, 4 years of preparation for the doctorate. During the first 2 years of this last period, the student gets acquainted with pathology, physio-pathology, techniques of diagnosis, nosology and therapeutics, and makes his first contacts with the clinic. During the third year of doctorate he gains knowledge of the elements of the diverse medical specialties and visits the various clinical services. The last

year is devoted almost exclusively to hospital practice in the departments of medicine, surgery, and obstetrics.

Examinations are held every year, one session in July and the other in October. The jury includes also professors of the Belgian universities. Successful candidates are permitted to enroll in courses of the next study cycle.

After receiving his diploma, the young physician, if he so desires, may follow postgraduate courses in order to become a specialist.

Actually, the Faculty of Medicine of the University of Lépoldville has organized teaching through the fifth year; but every year there has been opened—and will be opened in the future—a new series of courses, keeping pace with the students' progress. Thus, it can be expected that the first M.D. diplomas will be granted in July, 1961.

As an annex to the Faculty of Medicine there is a dental school which will produce its first graduates in 1960. Supplementary courses of tropical medicine are also taught to doctors who, coming from Europe, do not have any experience in local pathology.

The number of students enrolled has gone up year by year, although it might still seem low when compared with that of metropolitan universities. In the beginning of the academic year 1958/59, a total of 360 students was enrolled at the University.

It should be noted that African and non-African students mix freely and that there exists no racial discrimination at a university where only a third of the students are Europeans. Numerous other problems, however, confront the African students. For many of them the problem of how to finance their studies would be without solution if the Government did not grant them scholarships and study loans. The $600 granted yearly covers tuition and living expenses of the students, who also try to find temporary employment during vacations. The scholarships are granted to any student whose previous studies warrant admittance to the University and who passes the successive tests in the courses he has chosen. Many African students have not yet had the opportunity for adequate secondary school education. Therefore, the University has organized pre-university courses designed to fill, in a year, possible gaps in high school education.

Most students and professors reside at the University, where they also find organized entertainment and installations for sport activities.

The Faculty of Medicine has two large buildings, which are constructed in such a way that extensions can easily be added. In one of them eight departments of research are housed (anatomy and histology, physiology, biochemistry, pathological anatomy, bacteriology, physio-pathology, pharmacology, and experimental surgery). In the same building are the classrooms, the student laboratories, a (mechanical) workshop, and a library. One part of the edifice is reserved for the use of radio-isotopes. A large animal house is being built nearby.

The University Clinics, which were inaugurated in December, 1957, actually consist of two pavillions with hospital facilities for 180 patients. They are situated at both ends of the technical complex (laboratories for clinical analyses and hematology; functional tests; x-rays; and operation rooms for abdominal, thoracic, orthopedic, and gynecological surgery). These clinics were received from the Government to assure medical care for the inhabitants of two important suburbs of Léopoldville. They also control dispensaries set up in the very heart of the city. They admit, besides, any patient recommended by a practicing physician. Six months after the opening of the clinics, the first mitral valvulotomy was carried out. There are plans for a psychiatric hospital to be added to the medical buildings.

As long as the students of Lovanium University have not reached completion of the study cycle, the University Clinics are appealing to resident doctors and interns in Belgium for staff. They will find in Lovanium a huge field of activity and be able to get acquainted with medicine in the under-developed countries.

The University has also stimulated creation of a school for nurses connected with the University Clinics.

Members of the University staff are granted the benefit of yearly home leaves to Europe. These trips give them the opportunity to re-establish regularly scientific ties with the great European centers and so avoid isolation which, for them, would constitute a great danger indeed.

Scientific research is not neglected at the University of Léopoldville. It is, on the contrary, one of its reasons for existence. The various laboratories are equipped adequately for the research work being undertaken. The first atomic reactor in Africa will be functioning within the University boundaries in 1959. It will be available to physicians and biologists.

The University budget, relatively high, especially since a good deal of the equipment is imported from abroad, benefits from Government aid. It also receives financial assistance from private philanthropies. The Rockefeller Foundation has recently granted an important subsidy to the Faculty of Medicine.

In this paper we have attempted to give a report of the conditions actually prevailing at Lovanium's Medical School. Who knows what it shall be some years from now? One can only predict that it will grow at the same prodigious pace which animates the whole African continent in our time.

A MEDICAL NICHE IN STATUARY HALL

A niche in Statuary Hall in our nation's capitol is a signal honor. Medical Education can be proud that on February 26, 1959, a statute to Dr. Florence Rena Sabin was dedicated in Statuary Hall. Dr. Sabin was the third woman so honored and one of the relatively few physicians who has achieved such distinction.

At the Dedicatory Ceremony, Dr. Ward Darley, a long-time associate of Dr. Sabin, delivered the dedicatory address. These remarks have been excerpted from Dr. Darley's address:

"Dr. Florence Rena Sabin was born in Central City, Colorado, November 9, 1871. She entered the Johns Hopkins University School of Medicine, receiving her M.D. degree with honors in 1900. Following further study, Dr. Sabin accepted an appointment in the Department of Anatomy of the Johns Hopkins University, where she remained until 1925, when she transferred to the Rockefeller Institute for Medical Research.

"As a woman of distinction, Dr. Sabin enjoyed at least four 'firsts'—she was the first woman to be appointed a full professor at the Johns Hopkins School of Medicine; the first woman president of the American Association of Anatomists; the first woman member of the National Academy of Sciences; and the first woman to head a department at the Rockefeller Institute for Medical Research.

"A teacher of medicine has been defined as one who, in the field of medicine, possesses superior professional, scientific and technical knowledge, experience and judgment, and who, because of the ability to communicate and demonstrate this knowledge, experience, and judgment, can motivate and inspire students to want to learn and at the same time

provide the leadership essential for this learning. By the standard of this definition, particularly since a deep sense of humanitarianism illuminated all of its components, Dr. Sabin stands out as one of this nation's great teachers of medicine, and it is this cluster of attributes that accounted for her every accomplishment."

J. Z. B.

STATUE OF DR. FLORENCE R. SABIN

Letter to the Editor

When one looks back at the United States from overseas, one has a slightly detached point of view and cannot help but be concerned at what is visible. Abroad one can see in a multiplicity of forms the results of imposition of controls on medical practice, and one can recognize the same symptoms in our own country of the growing dissatisfaction with medical practice which resulted in a controlled profession in other countries and which will follow the same path in the United States unless some therapy is applied.

One naturally questions whether it is not just as appropriately the role of the Medical College to engage in clinical trials of techniques to cure our profession's ills as it is to cure the ills of the patient our profession serves. The therapeutic measures are at hand, the diagnosis is not at all obscure, but the educational institutions singly or collectively seem to be standing by like a group of wise consultants as the patient's strength ebbs steadily away. Much inaction has been justified on the basis that the "patient" has not requested the services of the "consultant," or on the basis that the treatment may be worse than the disease (many proposals for cure involve the use of "socialism," admittedly too dangerous a drug even in the most minute quantities), or on the basis that the condition is not really within "our specialty." Many laments are sounded on the impending death of free medicine.

If one really believes in the principles on which our free competitive enterprise system is based and one applies these principles to the practice of medicine, then one can develop a therapeutic plan which on application could improve the quality of medical care reaching the patient, preserve the independence of the physician in dispensing the care, reduce the sources of dissatisfaction on the part of the consuming public, and yet at the same time meet one of the greatest needs of the medical colleges today, the financing of a stable faculty!

In a brief communication one can present but the barest outlines of such a proposal, but little imagination is required to place the musculature on the skeleton. A few basic preliminary considerations must be presented, however, to hold our structure together. The first is an understanding of what is free competitive enterprise. It is the freedom to place on the market a service or product which the consumer may desire more than a similar service or product placed on the market by someone else, and the freedom to purchase a needed commodity from among a group of similar commodities at the most advantageous terms one can.

While we in the profession have self-imposed restraints on the manner in which we dispense our services, which we call "ethics," it does not alter the fact that we sell a service and that the better the service the more satisfied the consumer. In the free competitive enterprise system, moreover, it is the consumer who sets many of the standards as to the desirable features he wants in a product, or in the manner of obtaining it.

In order to marshall the many skills necessary to produce the service or commodity desired by the consuming public, business in the United States (as anti-socialistic as any group can be) evolved the technique of the corporate structure, both for production and

distribution; but medicine, while providing for diversified skills through the development of many specialties, has collected them together only in special settings. While we have seen small special shops selling meat only, or bakery products only, or vegetables only, etc., give way to the "supermarket," we see medical specialties hanging on tenaciously to the small individual private office and resisting for the vertical patient the technique they employ for the horizontal.

At the same time we see the Medical College possessing two valuable commodities from which it derives no financial benefit:

a) A source of top-notch medical care to whom access is denied that portion of our population most important in setting consumer trends—the great middle class, and

b) The ability to confer very special status on an individual.

While possessing these commodities, the medical colleges continue to purchase the services of their faculty members in a manner which is inefficient, too costly to the college, and too low to retain a stable faculty because of the "competition" of private practice as now organized.

However, if one makes realistic use of the college's unexploited marketable commodities and the potential of group practice as a "competing" method of providing medical care to a community, a unity of interest may be created where a group practice organization may supply the university with a stable faculty at much less cost to the college, while providing monetary gain to the physicians comprising the organization, and with the provision of a more attractive product to a large and significant segment of the consuming public. If one simply accomplished the latter, the profession would be spared the threat to its freedom; but to do so in a manner which is also in the financial interest of the medical college makes this question one of more than mere academic concern to our medical educators.

To translate these generalities into specifics, one need only develop the right kind of contract for the provision of faculty functions by an appropriately organized association of physicians, in order to overcome the objections usually raised when one suggests a technique of this nature; each in its turn.

The university requires a cadre of full-time persons to organize the instruction of students, maintain academic standards, and direct research activities. Such full-time persons are required at the top of the academic ladder and less so down the line. While many medical school administrators feel that a completely full-time faculty is the ideal, in reality what is obtained is a group of persons in full-time status for relatively brief periods of time. If one recognized that a large portion of the faculty is in a constant state of recruitment and replacement, and provided for a regular system of rotation in full-time status and replaced the present system, one could evolve the following organization.

Professors X, Y, Z, etc., the full-time chairmen of the various departments which make up the faculty, associate themselves into an independent organization and contract as an organization with the university to discharge all faculty functions, including the provision of full-time persons in the lower echelons. The association offers membership to physicians of suitable qualification who will, as an incident of membership, be associated with a group of other similarly well qualified persons in group medical practice, and as part of their duties will spend every fourth or fifth year on full-time status with the university.

The organization establishes group practice centers throughout the environs of the university and offers memberships on a competitive basis to community physicians, thereby adding to the existing faculty, establishes a membership which through the rotational sys-

tem can each year place one fifth of its members on full-time faculty status. During the periods of non-full-time university status, the physician members of the group would engage in clinical practice, maintain constant contact with the educational program of the university conducted by their associates, undertake to provide teaching experience for students within the group practice structure, and incidently derive an income which would not only support them during the time of practice but during the years of full-time university service also.

This latter is possible by simple arithmetic. It has been shown repeatedly that the group structure enables a larger net income for the individual practitioner for comparable hours of work, by pooling overhead expenses. The figure most widely accepted is 10 per cent. Today, as a result of rulings of the Internal Revenue Service, tax advantages available to corporations may be available to group practices organized appropriately, and hence additional net income after taxes can result to the individual members of the group, estimated as between 5–10 per cent of income depending on its level.

The 15–20 per cent gain to each member of the association, if set aside to finance the 1 year of full-time faculty status in each 5, returns to him nevertheless the same net income he might expect to derive from full-time individual medical practice.

With our population moving steadily to "suburbia," the establishment of a series of groups within suburban centers, carrying the "blessing" of the university, or the name: "The College Faculty Group of Midville," would undoubtedly present an attraction to the populace. They can be assured of the quality of physician admitted to membership in the group and the efficiency of a complete service in a single center. They can be assured of continuity between group center and university hospital, since associates of the same group would provide care in either place, and they can be assured accessibility to the best-trained specialists in the community if required, since the channel to the top echelon remaining full-time at the university is through the group.

The physician members, in addition to the monetary features mentioned, are presented with an opportunity to practice as ideal medicine as can be developed, with constant university association, and with opportunity to work up through the ranks to positions commensurate with their merits. If organized on democratic lines, the group structure presents an opportunity for self-government in terms of policies and practices, thereby retaining the freedom of the practitioner.

The university is assured a faculty, and by terms of its contract with the group association can establish the standards which will be the responsibility of the group to meet. It would have available a variety of settings in which a student may be trained in medicine without exclusive dependence on the "indigent" segment of the population for "case material."

The community physicians, many of whom are former faculty members, can be given the opportunity to fill out the ranks of the expanded faculty organization, since a faculty of 5 times usual size is required to provide the rotational opportunities. Those who elect not to join, reserve this right, but will naturally be stimulated to maintain and improve their own standards, for "competition is the spirit of trade." The present town-versus-gown strife rampant in many places may be presented with a formula for improvement on the principle of "if you can't fight them, join them." Moreover, the university itself would not in any event be engaged in practice; it would merely contract with a practice organization for the provision of faculty members.

Lastly, the buildings to be occupied by the group should be mentioned. For various reasons it would seem appropriate for these to be built and owned by the university. This would enable the group to get organized without undue investment on the part of each member physician. This would also prevent a group, once organized and established successfully, having capitalized on its university affiliation in developing its clientele, from severing itself from its obligations toward university status. This would also provide an income to the university in terms of rental property, and if at any time the system was found to be unsatisfactory and a reversion to present methods desirable, the real property would present a valuable asset. Since the buildings are essentially in the nature of "professional buildings," mortgage loans should be available for their construction without undue drain on the resources of the university, and in any event capital funds rather than operational budget would be involved.

What has been presented above is but a gross outline of the essentials of a proposal dealing with the weighty problems of medical public relations and financing the clinical medical faculty. Much detail and much amplification are required even in this proposal to tailor it to the individual problems of a specific university in a specific geographical or cultural setting. Essentially, it involves an organization of the medical faculty on a group-practice basis with a series of semi-independent but coordinated sub-units. Through this technique a rotating full-time faculty could be available to the medical school.

While this approach seems to be a somewhat radical departure from practices currently existing in American medical education, it is but a synthesis of patterns and structures from other fields, each component in itself having demonstrated its validity in another setting and each based on an accepted principle of our free competitive enterprise system. What is urged is simply the consideration of the problem of medical education as an aspect of our social structure which might undergo modifications in line with trends becoming more and more apparent in our society, and at the same time provide the establishment of an organization of medical practice which enables the facing of many criticisms leveled at the medical profession today which threaten its freedom.

SIDNEY SHINDELL, M.D., LL.B.
Medical Adviser
American Joint Distribution Committee
Former lecturer in Medical Jurisprudence
Yale University School of Medicine

ABSTRACTS FROM THE WORLD OF MEDICAL EDUCATION

A Clinical Look at the Controversy over Education. ARTHUR S. ADAMS. The Educational Record, pp. 5–10 (Jan.), 1959.

The actual controversy over education is put under clinical observation in order to define its boundaries, inquire into its causes, and assess its results. The author (1958/59 President of the American Council on Education) expresses first of all his conviction that the controversy has greatly benefited this country by bringing the American people to a clearer understanding of the role and value of education in a democratic society. He also states that the dimensions of the controversy have grown very large. Extreme positions have been taken in the debate, as, for instance, by those who reject the fundamental idea of providing broad educational opportunities so that all young people may develop their talents to the limit of their capacity. They argue that admission to higher education should be strictly limited to an elite, ignoring, as the author points out, the fact that the outstanding characteristic of the U.S. labor force is the breadth of its base. At every level of the broadly based pyramid which represents the American labor force we find now persons capable of fulfilling jobs suited to their particular degrees of competence. If we were to have an elite, we should miss entirely a "vast army" of educated people who now fill the roles of what might be called "middle leadership." Other nations which have had the notion of an educated elite are beginning to realize that it is no longer suited to our complex modern world. Others argue that, because of the growth in knowledge and resulting specialization which we witness today, the educational system should be modified radically in order to serve better the special needs of our society. It has even been suggested that special government science academies be set up along the lines of the military ones, where the best prospective scientists would be educated at government expense for careers in specialized areas. Defenders of this plan seem to ignore the fact that to properly staff any such institution would gravely deplete the limited resources, now available in public and private institutions, for offering instruction of this kind. Furthermore, they overlook the fact that the strength of American education lies in its local control, which makes possible the very diversity which supports broad opportunity. In recent years, the fear that "the Russians are getting ahead of us in education" has taken a strong hold on many patriotic Americans, and some of them have fallen into the trap of thinking that the best way to advance American education is to copy the Russians, trying to outdo them. Such an approach to the problem, however, while it naturally reflects the nation's growing concern over the conflict with Russia, could be compared with that of a patient who is suffering from a deep-seated illness but who claims that some superficial symptom is the real cause of his distress. It is pointed out that our conflict with Russia goes surely much deeper than that and ought to be recognized for what it is: the conflict between two utterly opposed political, social, and economic ideologies. The moment we start to change our institutions it is the enemy who clearly has gained an advantage. What we need is not to alter the nature and philosophy of our educational system, but to devise means for improving its performance. Significant im-

provements have already been made in recent years (and not one of these, the author emphasizes, was initiated because of "Sputnik," although all were accelerated by the public awakening which followed the Russian achievement). Among these improvements the following are listed as the most significant ones: (1) Real progress has been made in raising teachers' salaries and their status. (2) The long-lasting campaign of educators for greater attention to talented students has gained stronger new support. (3) Projects to improve the quality of instruction in all important subjects have increased in number and effectiveness. (4) There has been a noticeable increase in the number and variety of experimental programs involving the use of new technical teaching aids. (5) Specialists in teacher education and representatives of subject matter disciplines are nearing agreement on desirable curricula for teacher training. (6) The seriousness of the shortage of qualified college teachers has been recognized, and schools, foundations, and federal agencies have made significant efforts to overcome it. (7) The National Defense Education Act must be considered a milestone because of what it provides and what it implies. As to future progress in education, the author recalls a statement, issued last year by the Problems and Policies Committee of the American Council on Education, to the effect that "positive and immediate action on all levels—federal, state, local, and voluntary—is the first imperative." The question is whether people will demand the necessary action. The author believes they will.

Continuing Education. American Journal of Pharmaceutical Education, Vol. 23, No. 1, pp. 1–34, 1959.

The following series of ten articles are designed to promote a better understanding of continuing education as a part of the responsibility of pharmaceutical training: I. *Postgraduate Education* (Roy A. Bowers, pp. 1–6) deals with adult education ("the new challenge in education") in the field of pharmacology and discusses its three major divisions: (*a*) Refresher or continuation studies in the vocations; (*b*) organized curricular studies leading toward degrees, and (*c*) avocational studies leading to a better understanding and appreciation of life processes. It is pointed out that continuation studies are based on concepts significantly different from those of the traditional educational programs designed for youth; that progress in the development of postgraduate occupational studies has not kept pace with the rapid and revolutionary changes taking place in the practice of the profession and that the responsibility for promoting such programs rests with schools and colleges, in full cooperation with practitioners. It must not be overlooked, however, that the financial aspects of in-service training present a difficult problem for most, if not all, colleges.

II. *Pharmacy and Continuing Education* (Hugh B. Masters and J. B. Bemson, pp. 7–8) discusses some methods applied in pharmaceutical postgraduate education, such as short-courses and conferences, emphasizing the value of modern technical devices (television, motion pictures and other audio-visual communication means). III. *Pharmaceutical Extension Service* (John L. Voigt, pp. 9–10) recalls the *Findings and Recommendations of the Pharmaceutical Survey* (1948), which advocated the setting-up of a "Division of Pharmaceutical Extension" and describes the program and functioning of such a service at Rutgers, which was established in 1950. IV. *The Pharmaceutical Caravan: A Means of Postgraduate Education* (Edward S. Brady, pp. 11–14) discusses the plan of postgraduate education initiated in 1954 by the U. of Southern California's School of Pharmacy, with financial support from a local pharmaceutical manufacturing concern. A very successful seminar program, developed from these plans, is described in detail.

V. *Annual Pharmacy Lectures* (Tom D. Rowe, pp. 15–18). This 1-day program of the University of Michigan consists of five talks and a banquet speech, and is in general

similar to the 1-day "refresher" or seminar programs given at other colleges of pharmacy. It has, however, a few distinguishing features, the most important of which (and, according to the author, a decisive factor in making it successful) is a conscientious effort to have all the papers presented on a level which assumes that the pharmacist is a well trained scientist who can and does understand modern scientific methods and terminology. Among other guiding principles underlying the program the following are stressed: (*a*) There shall be at least two medical speakers; (*b*) there shall be one retail pharmacist who can discuss some phase of pharmacy with which he is especially well acquainted (commercial pharmacy, however, is to be kept at a minimum); and (*c*) there shall be one of the University of Michigan's own pharmacy faculty member. The program is assisted by the University Extension Service.

VI. *Continuing Education in Pharmacy at Georgia* (K. L. Waters and Charles L. Brancher, pp. 19–22). The need for an effective program of continuing education for the practicing pharmacist has long been recognized by the University of Georgia. Dr. Robert Wilson, former Dean of its School of Pharmacy has pointed out in 1940 that "the solution to this phase of our educational problem lies in the possibility of the development of educational extension services where, under the direction and auspices of the school or college of pharmacy, the stimulus to intellectual and commercial growth may be carried directly to the individual. . . ." This article presents a survey of that School's efforts, during the last decade, to attain by means of such an extension service the goal set by Dean Wilson.

VII. *Specialized Courses in Continuing Education* (L. F. Tice, pp. 23–26). In the early times of pharmaceutical education in the U.S., colleges of pharmacy offered little more than an organized series of lectures; no formal laboratory instruction was given, and all "practical work" was learned by the student working in a pharmacy under his preceptor. Today, laboratory courses make up a very important part of the pharmaceutical curriculum, and practicing pharmacists look to the college of pharmacy as the place to learn new techniques, especially since many of the new developments in pharmacy require some very unusual equipment as well as highly specialized training. Therefore, while "refresher" courses and seminars are very valuable, it is even more important to give training in those highly specialized techniques which are almost impossible to master without some type of formal instruction. In this paper, two courses of such a nature, offered by the Philadelphia College of Pharmacy and Sciences, are outlined: The first, started in 1951, deals with radioisotope techniques, the second with the preparation of parenteral products. The author points out that the presentation of courses such as the two described is a service of value not only to pharmacists but to the institution itself, because "a teaching staff which accepts the challenge of presenting new technological developments as continuing education is certain to avoid the common pitfall of academic stagnation."

VIII. *A Note on Continuing Education at Temple University* (Joseph B. Sprowls, p. 27) describes the opportunities for continuing education at this institution (Philadelphia), which have been organized along three lines: (1) informal lecture programs sponsored by the Pharmacy Alumni Association, (2) seminars offered with the collaboration of county of metropolitan pharmaceutical associations, and (3) noncredit courses offered through the Management Institute of Temple University. IX. *Postgraduate Pharmaceutical Education in France* (Georges Cuvier, pp. 28–31). Pharmaceutical education in France comprises a preliminary year of practical apprenticeship served in a pharmacy, followed by 4 years of full-time university studies. At the end of the 4th year, the student having passed all end-of-year and end-of-study examinations obtains the *diplôme de pharmacien* allowing him to practice as a pharmacist. However, the author points out, this is in theory; in practice, the number of qualified pharma-

cists turned out annually by French schools (about 1,000) is far greater than can be absorbed, since the number of pharmacies in France is limited by law (to about 14,000). This is the reason why most of the newly qualified pharmacists are unable to work in a pharmacy and now gravitate toward careers in laboratories, especially in the analytical laboratories recently created in France and controlled by legislature which restricts their direction to persons holding a specialized qualification. To obtain it, the newly qualified pharmacist has to undergo a specialized course followed by examinations. The Faculty of Pharmacy at Paris, in common with most of the provincial Faculties, has organized these complementary studies corresponding to the various specialties, and six *Certificats d'Études Supérieures* have been created, dealing with subjects such as applied chemical biology; microbiology, serology, hematology and parasitology; pharmacotechnic (extraction and chemistry of synthesis); pharmacodynamics and biological assay, etc. Each certificate requires 1 year of study. The Faculty of Pharmacy in Paris has also been authorized to grant four *Certificats d'Études Spéciales* for which the curriculum and examinations are being controlled on a nation-wide basis.

X. *Making Postgraduate Refresher Courses More Practical* (L. E. Kazin, pp. 32–34). This last article of the series discusses "refresher work" for retail pharmacists, for which there still appears to be a lack of interest on the part of the practitioner. Such an attitude, the author points out, considering the revolutionary changes in pharmacy during the last 2 decades and the strong competitive forces in this field, could well endanger the future professional and economic position of pharmacy. Colleges of Pharmacy have long been aware of this problem and have been giving increased attention to the planning of postgraduate programs or extension services. However, contributions of some colleges to this field of "refresher" activity are often restricted by certain financial and manpower problems. The judicious use of outside specialists is suggested as a means of minimizing the load placed on the resources of a particular college. Furthermore, it is pointed out that all segments of the pharmaceutical field, in addition to education, have responsibilities toward furthering the refresher objectives, and suggestions are offered of how to utilize all these resources in the planning, organizing, and financing of pharmaceutical refresher courses.

Continuing Education for Teachers of Dentistry. WILLIAM R. MANN, D.D.S. Journal American College of Dentists, no. 4, pp. 311–317 (Dec.), 1958.

During the last 20 years there has been a constantly growing acceptance of both the need and the moral obligation of the practicing dentist to continue his education throughout his professional life. Teachers of Dentistry are also realizing that they have a similar need and obligation toward their students and their profession, and that they must strive continually to improve their teaching. Dentistry, the same as other specialized branches of higher education, recruits teachers largely from its own ranks. These teachers, while having an excellent knowledge of their subject matter, are generally quite ignorant of even the most elementary information regarding teaching methods (the same applies often to basic science teachers who instruct dental students). Virtually everyone connected with dental education agrees that the teaching of dentistry should be improved and most advocate in-service training programs in teaching for the benefit of all faculty members. Although at present the methods of providing such training vary greatly and programs are rather sporadic, there is every indication that in years to come well constructed, effective programs of in-service education for dentistry teachers will be established. The motivation for such programs, however, must stem from the teachers themselves, and should not be forced upon them by school administrations, although the latter can contribute much in establishing a favorable climate and suitable

time for such activities. The counsel of a person who is experienced in the field of education should also be secured, and then a representative faculty committee should plan the organization of the program. Obviously much time and effort have to be expended in initiating and developing an effective in-service program. This paper discusses a series of problems which unavoidably will present themselves in the organization of such a program and offers some suggestions for their solution.

Facilities for Psychiatric Education. Survey of Psychiatric Departments in Medical Schools. KENNETH E. APPEL, M.D., and MANUEL M. PEARSON, M.D. The American Journal of Psychiatry, No. 8, pp. 698–705 (Feb.), 1959.

The purpose of this paper—a survey of the Departments of Psychiatry in 30 medical schools—was to discover what can be considered "a standard, appropriate and realistic structure" for a Dept. of Psychiatry in a medical school in the United States today. The methods applied in this study consisted of personal visits by senior staff members of the Dept. of Psychiatry of the University of Pennsylvania, with departmental chairmen and deans of other medical schools. The essential data obtained by the investigation cover the budgets for medical schools and their psychiatric departments; the number of teaching hours, of full-time staff members, volunteers, and residents; the number of beds available and used for teaching in teaching and affiliated hospitals. Also included were data on research staff and budgets (Tables 1–10, inserted in the paper, show the detailed figures of the information obtained, and are briefly commented on. Since many school officials are reluctant to make their figures public, no schools are identified by name). The conclusions drawn from the results of the survey point (1) to a great variation in the support of psychiatric education and community service by medical school facilities, ranging from *superb* (17 full-time teachers, 100–200 beds in teaching hospitals, one-half to almost one million for research and 40 residents at one medical center), to *poor* (no full-time staff; no bed in a teaching hospital; no residents; no funds for research; a budget of $7,000–20,000 from the medical college). It was also found that (2) medical and psychiatric education are, in general, not able to keep up with community demands for psychiatric treatment, in spite of the increasing use of drugs. Among the factors responsible for this deficiency the following are mentioned: Too small a number of psychiatrists (10,000); inadequate psychiatric leadership in many schools; inadequate training in psychiatry for physicians in general; deficient budget and space resources; negative attitude toward psychiatry on the part of staff and administration; lack of community demands and support for better psychiatric education in many medical schools. (3) Consequences of the lack of opportunity for adequate psychiatric treatment are seen in the increasing demand for psychotherapy from non-medical people and the development of psychoanalytic training outside of the medical schools. (4) In many schools departmental and administrative functions "swamp" psychiatric leadership and creativity. (5) In many medical schools students are deprived of psychiatric knowledge and instruction through "lopsided" medical training which emphasizes the *physical* aspects of disease disproportionately. (6) Inadequate communication between psychiatric departments throughout the country. (7) A general *lack of information* concerning the over-all aspect of medical education and the proportionate part of the departments of Psychiatry. Finally, the study suggests the desirability of teachers, educational directors, and medical school administrators meeting to discuss problems of medical and psychiatric education and training and community service.

Chaire de Physiologie Appliquée (Chair of Applied Physiology): Inaugural Lecture by PROFESSOR DANIEL BARGE-

TON (Faculté de Médecine de Paris). La Presse Médicale (Feb. 21), pp. 323–326 (Paris), 1959.

In his inaugural lecture, Prof. Bargeton examines the role of a teacher of physiology in a medical school. His first mission, he says, is that of training good practitioners, and, above all, no "faux savants." This is not as easy as it might seem, because those who teach basic sciences often tend to believe that they are of first importance in the training of the future physician. Experience shows that the students are generally of a different opinion, and, although most probably they are wrong, it would be a mistake for a teacher to disregard the students' opinion entirely. However, basic sciences should be taught before the clinical sciences, because the latter require a certain maturity of judgment, whereas basic disciplines are perfectly accessible to young and untrained minds. How, then, should physiology be taught to those who have never heard of it before? Above all, insignificant details and technics must be avoided, and general principles stressed. First of all the student should get acquainted with the principal modes of reasoning used in physiology, together with practical explorations of the human physiology. Human physiology, like all sciences which are reaching the age of maturity, necessarily utilizes mathematical tools, which require of the students a certain knowledge in mathematics. The problem which confronts the physiology teacher in a medical school is that some students often lack this minimum knowledge. Summing-up the actual state of human physiology, its aims, difficulties, and expectations, Prof. Bargeton recalls the fact that for a long time, in the past, human physiology differed only in name from that of mammals, since animal vivisection was then the only means of investigation. Today, modern technics have made possible the observation of the human organism by means which spare its integrity, and it has been universally recognized that man constitutes an exceptionally favorable subject for physiological studies. Another important characteristic of modern physiology is that it rapidly tends to become a quantitative science which aims at describing the functioning of the human organism through the establishment of relations between measurable sizes. An important—and much debated—question, however, is this: Up to which point can such an enterprise be pursued? So far, the efforts made in this direction have met with startling success, as well as with humiliating failures. One cause for the failures has been seen in the still insufficient knowledge we possess of those basic mechanisms which work from the first in the cells themselves. However, Prof. Bargeton thinks that progress in cellular biology is neither a necessary nor a sufficient condition for progress in the physiology of the whole organism. A second cause of failure has been attributed to the importance of aleatory elements in the comportment of the human organism. However, a more profound explanation of the obstacles which confront modern physiology may be related to a tendency to remain too close to a concrete reality, when one should rather base one's arguments upon such patterns as characterized by a small number of parameters, either abstract or even imaginary, which would bring one back to the simplicity of mathematical systems. From Lavoisier to Cournant, the greatest achievements in physiology were produced when this last tendency prevailed.

How Much Money Do Our Medical Schools Really Need? PEARL BARLAND. Medical Economics, pp. 89–91; 255–258 (March 2), 1959.

Current tuition fees cover only about 6 per cent of the 300 millions the nation's 85 medical schools are said to have spent last year. To lift schools out of the red, various proposals have been made, such as collection of "retroactive" tuition fees; a 300 per cent tuition raise, or larger annual contributions from the A.M.A. However, many educators believe that such ideas are impractical and, at best, only stop-gaps, and that ultimately

federal subsidies must solve the problem; but, exactly how much more money is needed? On the national level, this question seems unanswerable now, because every school figures its needs on a different bookkeeping basis (one school recently used two accepted methods to work out the same budget, with resulting totals as far apart as 1,043,079 against 2,500,745!). The only way, therefore, to get an accurate total for all the schools would be to devise a uniform accounting procedure, which is indeed now being developed under the sponsorship of the Association of American Medical Colleges. The following results can be expected: (1) A clear picture of nation-wide medical school financing; (2) a greater possibility for a given institution to effect economies by comparison of its budget with others; (3) clearance of the path for sound future planning; and (4) new sources of income which may be tapped when schools can explain their needs in terms businessmen can understand. So far, only a pilot study of the accounting situation has been completed, but already with a noticeable effect: While older, less reliable figures indicated that medical schools spend now 208 per cent more a year than a decade ago, it can now be ascertained that schools will spend 13 per cent more this year than they did last. It may ultimately appear that the total annual cost of medical education has been underestimated. In this case, those who oppose now federal aid (for fear of political control) are not being realistic. However, it is also possible that the cost has been overestimated and that federal subsidies may not really be necessary. (Summarized answers of the questions: Where do medical school dollars come from? and How much do doctors give the schools? can also be found in this report.)

The Human Touch. JOHN CHAPPEL. Journal de L'Association Canadienne des Étudiants en Médecine et des Internes, pp. 20–22 (Feb.), 1959.

The medical profession has long been occupying a special place in society. A doctor has generally been thought of not only as a man of above-average intelligence and education but also as a leader in the community and a living symbol of human kindness. Unfortunately, these two images are becoming as widely separated as were our old concepts of mind and body. "The human touch" is now often de-emphasized, by both faculty and students, in favor of technical skill and factual knowledge. Doctors and students are frequently heard to refer to the "gall bladder," "kidney," or "chest" they just have seen. This is another reflection of the current intense preoccupation with the tangible and concrete aspects of disease, and the impersonal way in which diagnoses are made. Oscar Wilde's *mot* that "a person is only a person, but a good disease is a case" might well be applied today to the medical student's outlook. As Zachary Cope warned once, "now there is the danger that student to the patient may be stranger." The extent of the problem is well demonstrated by a recent experiment undertaken at Harvard University, where the same patients of a medical ward were interviewed by senior medical students and by senior art students. The shocking result was that the latter "elicited more information from the patients concerning emotional and social problems relevant to their illnesses" than did the medical students. On the other hand, it cannot be said that medical students themselves are strangers to emotional conflicts and suffering. The CAMSI study on mental health estimates the incidence of mental illness among medical students at from 2 to almost 10 per cent, with up to 25 per cent of them having emotional problems severe enough to interfere with their studies, the most important precipitating factor being *examinations*, followed closely by *sex*. The study also disclosed that medical students "are loath to come to the University Health Services when a psychological disorder is present," for fear that their visit would bring to light some personality defect which would be counted against them in the general evaluation of medical students. If students, then, are subject themselves to such a dose of hu-

man frailties, there is all the more reason to include in their education the acquisition of "the human touch." It may be argued, of course, that no matter how kind a doctor, his patient will suffer and possibly die if he is lacking in knowledge or skill; and that there is also a danger in the physician's becoming too involved emotionally with his patient. However, such considerations do not justify doctors' treating disease without caring for the patient. Because of the pressures of today's medical education, little more is demanded of the student than the acquisition of great masses of information, with only little thought for integration and correlation; and the public, which prefers the specialist to the general practitioner, helps in reinforcing the emphasis on knowledge and technique. However, the medical student who submits to this pressure is ignoring a factor which transcends specialization and involves virtually every person in the medical profession: human personality, one of the most useful tools in the therapeutic arsenal. One could almost say that a doctor is guilty of negligence if he neglects his own personality as a therapeutic device, leaving "the human touch" to relatives or ministers or whoever seems to care more for the patient than he does. Students of "the most human of all arts" cannot afford to eliminate "the human touch" from their education, because then they will be failing both themselves and their future patients.

Effective Use of Teaching Time. C. R. B. JOYCE, PH.D., and M. WEATHERALL, M.D. The Lancet, pp. 568–71 (March 14) (London), 1959.

A great part of the clinical course can be taught in more than one way: through lectures, seminars, practical classes, or independent reading. In a previous study (see Joyce and Weatherall, 1957) it has been attempted to compare the relative usefulness of some of these methods (estimated by the ability of students to pass examinations). It had then been pointed out that the economy of the methods differed and that it was important to assess the usefulness of combinations of teaching methods. It seemed especially useful to compare methods in which the contribution of teachers' time was small, with those in which instructors were fully involved, in order to find out—that which has been a matter of dispute—whether the methods demanding a more active student participation are more successful than those which involve a passive acceptance of explanations. The present study is an attempt to compare the usefulness and relative economy of teaching groups of students by "passive" or "active" means, using the same objective methods which were applied in the 1957 investigation. Matched groups of preclinical students were taught the pharmacology of the peripheral nervous system by means of lectures, each group attending, in addition, either demonstrations or practical classes, and either conventional seminars or discussion meetings initiated by playing back recorded material, in the absense of a tutor. The relative value of each method was assessed from the gain in knowledge (through objective examinations), from the time spent in teaching and being taught, and from the students' own appreciation of the different methods. The results of the investigation showed the following: (1) Gains in knowledge did not differ significantly from one group to another. (2) Demonstrations were much more economical of time for all concerned than practical classes; discussions required less time of teachers than seminars, while the corresponding difference for students was very slight. (3) Students found demonstrations more useful and enjoyable than practical classes, and seminars rated higher with them than discussions. It was found, furthermore, that the amount of time spent by students in private study did not show any significant correlation with their test scores, whereas there was at least a suggestion that the more critical students perform better than the less critical ones. Various tables inserted in this paper show in detail the figures on which these findings were based.

NEW BOOKS

Abstracts

Therapeutic Radiology—Rationale, Technique, Results. By WILLIAM R. MOSS. St. Louis: The C. V. Mosby Co., 1959. 393 pp. 146 illustrations. $12.50.

This book is not meant as a recipe for radiotherapy, nor is it intended to be an encyclopedia on radiotherapy. It is meant to serve as an introduction to selected clinical problems in therapeutic radiology, and it expresses a philosophy of radiotherapy designed to lead to improved patient care. The discussions are to a large extent limited to important clinical problems as they apply to radiotherapy. In discussing rationale and technique, it has been assumed that the reader has a knowledge of radiological physics. No attempt has been made to cover the field of radio-isotope therapy. However, the relative value of radio-isotope procedures has been mentioned when it seemed pertinent.

Surgery in World War II—Neurosurgery Volume I. Edited by R. GLEN SPURLING and BARNES WOODHALL, with 14 contributors. Washington D.C.: Office of the Surgeon General, Department of the Army. 428 pp. (For sale by Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C.) $5.00.

This book is the first of two volumes dealing with the history of neurosurgery during World War II. This volume deals with administrative consideration and head injuries. The second volume will cover injuries of the spine, including peripheral nerve injuries and rupture of the intervertebral disk. Included in the discussion of head injuries are (1) the management of acute craniocerebral injuries due to missiles; (2) penetrating wounds of the cerebral ventricles; (3) blast concussion and cerebral injuries due to explosion waves; (4) clinicopathologic aspects of fatal missile-caused craniocerebral injuries; (5) cranioplasty; (6) post-traumatic epilepsy; (7) speech disorders resulting from gun shot wounds of the head and neck; and (8) infections following acute gun shot wounds of the brain.

Pediatric Neurology. By STANLEY S. LAMM. New York: Landsberger Medical Books, Inc., 1959. 482 pp. $12.90.

In view of the increasing relationship between pediatrics and neurology, an effort is made to point out here the influence upon each other of recent advances in both fields. Examples of allied disorders in which much has been learned in the past decade includes cerebral palsy, epilepsy, and those related to inborn errors of metabolism. In like manner both specialties have benefited by the increased knowledge of the effects on brain development of such prenatal factors as anoxia, infection, radiation, and Rh incompatibility. Detailed anatomy of the nervous system has not been included, but the anatomy and physiology required for understanding certain specific diseases are described. The method of performing a specific neurological test and its significance are described as indicated in the discussion of the individual diseases. Included also are descriptions of reflexes, both normal and pathological, and an outline or normal motor development. It is emphasized that observation of physiologic and spontaneous behavior rather than a compilation of the conventional neurologic signs to fit a classic syndrome constitutes a better approach. In the chapter on cerebral palsy, there is a detailed description of history taking, which may be suitably applied to any neurological condition. Comment on electroencephalography is made in the presentation of epilepsy, and the meaning and value of electro diagnosis and electromyography are covered in the chapters on diseases of muscle. In disorders where therapy is of great value, specific treatment and daily management have been outlined in detail. Some of the diseases in this group are the meningitides and encephalitides, cerebral palsy, epilepsy, intracranial birth injury, lead encephalopathy, and certain brain tumors.

Cancer—Diagnosis and Treatment. Edited by JOHN B. FIELD with 28 contributors. Boston: Little, Brown & Co., 1959. 776 pp. $18.50.

An increasing number of medical schools are incorporating into their curricula courses specifically oriented to oncology. This book is conceived as a text for such a course. It is planned and organized around a course wherein representatives of each clinical division give an authoritative review on the most recent information and practical knowledge relating to cancer and his specialty. The volume consists of a series of compact reviews by recognized authorities. No attempt at editorial interference has been made, and the flavor of personal expression by active participants in the field has been retained. A studied effort has been made to present a detached, unbiased reference for therapeutic recommendations. The volume is not weighted pro or con surgery or radiation therapy. The author of this book has a firm conviction that improved education of medical students and practitioners is of vital concern in the interest of faster recognition of the many forms of cancer so that a diagnosis can be established as rapidly as possible and effective therapy started sooner than is now generally the case.

The Psychiatric Aide—A Textbook of Patient Care. By ALICE M. ROBINSON. 2nd ed. Philadelphia: J. B. Lippincott Co., 1959. 186 pp. $3.50.

As was the 1st edition of this book, it is addressed not only to the psychiatric aide but also to students of nursing, teachers, interested laymen, and all others whose endeavors are directed toward helping those unfortunate persons who have "lost their way." Rapid advances in this field have necessitated the present revision. An attempt has been made to retain the initial attitudes, but certain specific and scientific changes will be noted. These include the vitally important need for nursing personnel to understand the dynamics of communication, both verbal and non-verbal; the influence of the "tranquilizing" drugs on nursing care; the ever-increasing need for a better understanding of old people; the more extensive and intelligent use of "industrial therapy"; the implications vitally inherent in "open wards" and rehabilitation houses; and new techniques of special interest to aides—such as "remotivation." All these newer concepts have been included in the 2nd edition. Outdated methods such as lobotomy have been mentioned only briefly.

Reproduction and Infertility—Third Symposium. Edited by F. X. GASSNER. New York: Pergamon Press, 1958. 260 pp. $6.50.

This symposium was held at Colorado State University, July 1–4, 1957. The principle purpose of the symposia has been to air and disseminate newer knowledge, born of basic research, in this field. In the selection of papers for presentation before the symposium, preference was given to those topics in which advance had been rapid in recent years and which would best serve to cover the more important facets of the problems encountered in reproduction and infertility. The contents fall under the following five divisions: I. Disease of Reproduction in Male and Female; II. Ovarian Physiology; III. Steroid Physiology and Therapy; IV. General Problems of Reproduction; and V. Semen Metabolism and Artificial Insemination.

Surgical Pathology. By LAUREN V. ACKERMAN, in collaboration with HARVEY R. BUTCHER, JR. 2d ed. St. Louis: C. V. Mosby Co., 1959. 1,079 pp., 1114 illustrations. $15.00.

This 2nd edition has been entirely revised; new illustrations have been added, and the references brought up to date. The collaboration of the authors in this work is interesting in that it involves a pathologist and a surgeon endeavoring to bring both points of view for a better understanding of this branch of pathology. Clinical, pathologic correlation has been strengthened, and disease processes as they affect the living patient have been clarified. This book does not pretend to replace in any way standard textbooks of general pathology, its purpose being merely to supplement them, assuming that the reader has a background in or access to the texts. The book has been written for medical students as well as physicians who are daily intimately concerned with surgical pathology. Gross pathology has been stressed throughout with an attempt to correlate the gross findings with the clinical observations. Concluding each chapter is a bibliography listing those references which are not only relatively recent and readily available, but also those which will lead the reader to a more detailed knowledge of the subject.

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*The paradox of migraine – increased nausea due to ergotamine administration – may now be successfully combated with 'Migral'. The recognized benefits of ergotamine and caffeine in 'Migral' are favorably enhanced by the addition of cyclizine hydrochloride, a specific to overcome nausea.

Dosage: 2 to 3 tablets at first warning of an attack, then 1 or 2 tablets every half hour; not more than 6 tablets should be taken for any single attack.

Supplied: 'Migral' tablets, containing ergotamine tartrate 1 mg., 'Marezine'® brand Cyclizine Hydrochloride 25 mg., and caffeine 50 mg.

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NEWS FROM THE MEDICAL SCHOOLS

Alabama

Dr. JAMES N. SUSSEX, associate professor of psychiatry, has been named professor and chairman of the department of psychiatry. He replaces Dr. E. L. CAVENY, who has resigned as chairman of the department to enter private practice. Dr. Caveny will remain as professor of psychiatry on a part-time basis. Before coming to the Medical Center in 1955, Dr. Sussex was assistant in clinical psychiatry at Georgetown University School of Medicine.

Dr. ROBERT EARL ROTH has been named chairman of the department of radiology. Dr. Roth, who was elevated from the rank of associate professor of radiology, succeeds Dr. GARLAND WOOD as chairman. Dr. Wood is entering private practice in Flagstaff, Ariz. A graduate of the University of Illinois College of Medicine, the new department head has been on the staff of the Medical Center since 1955.

Boston

Dr. JAMES M. FAULKNER, medical director of the Massachusetts Institute of Technology and former dean of the Boston University School of Medicine, has been elected chairman of the Joint Administrative Board of the newly formed Boston University-Massachusetts Memorial Hospitals Medical Center. The Board, formed in May, has over-all supervision of the Medical Center. Dr. Faulkner has served on the medical faculties of Johns Hopkins, Harvard, Boston and Tufts.

Chicago Medical

The Chicago Medical School received the deed to 10 acres of land for its new campus in the West Side Medical Center June 4, at ceremonies in which Gov. William G. Stratton of Illinois and Dr. Walter Theobald, president of the Medical Center Commission, took part. Dr. JOHN J. SHEININ, president of the school, gave the governor and Dr. Theobald a check for $205,000 for the property. Construction of the first building, a research institute to cost more than $4 million, will begin in August. Later a 17-story classroom and laboratory building, a student residence hall, and an apartment building for faculty members will be built. The four buildings with the land are expected to cost $25 million. The campus will replace the school's four-story building at 710 S. Wolcott Avenue.

A postdoctorate training grant in cardiology has been awarded to the Chicago Medical School by the National Heart Institute of the Public Health Service. The $39,000 grant will provide for the training of five doctors in either clinical or experimental cardiology, and will be under the direction of Dr. A. A. LUISADA, chief of the school's division of cardiology.

Colorado

Dr. GERTRUDE WEISS, associate professor of preventive medicine and public health, was elected Southwest Regional Director of the American Medical Women's Association at the annual meeting of the organization held recently in Atlantic City. Before joining the medical faculty in 1950, Dr. Weiss was district health officer for New York City, and taught in the department of preventive medicine at New York University College of Medicine. A native of Vienna, Austria, she received the M.D. degree from the University of Vienna and her Master of Science degree in Public Health from Columbia University.

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New: V-Cillin K® Sulfa. Each tablet combines 125 mg. of V-Cillin K with 0.5 Gm. of the three preferred sulfonamides.

New: V-Cillin K, Pediatric, a taste treat for young patients. In bottles of 40 and 80 cc. Each 5-cc. teaspoonful provides 125 mg. of V-Cillin K.

V-Cillin K® (penicillin V potassium, Lilly)
V-Cillin K® Sulfa (penicillin V potassium with triple sulfas, Lilly)

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Duke

Two Duke University Medical School professors have been appointed assistant deans of the school. Dr. JOSEPH E. MARKEE, James B. Duke professor of anatomy and chairman of the department, is assistant dean in charge of admissions, while Dr. WILLIAM M. NICHOLSON, professor of medicine, is assistant dean in charge of postgraduate education. Both men have served on the Duke faculty for a number of years.

Hahnemann

At the annual meeting of the Hahnemann Medical College and Hospital's Board of Trustees held recently, Dr. CHARLES S. CAMERON, dean, and CHARLES S. PAXSON, Jr., the hospital's administrator, were elected vice-presidents of the Philadelphia institution. The Board lauded both men for their exemplary accomplishments for Hahnemann during the past two and one-half years. Because of the able leadership of the men, Hahnemann's financial position is now immensely stabilized and improved, according to WATSON MALONE, III, president of the Board of Trustees.

Harvard

Dr. STEPHEN WILLIAM KUFFLER will join the school's department of pathology this summer as professor of neurophysiology and neuropharmacology. Currently, Dr. Kuffler is professor of ophthalmic physiology and biophysics at the Johns Hopkins Medical School. Born in Hungary, Dr. Kuffler received his M.D. degree from the Medical School in Vienna and later studied under Sir John Eccles of the National University of Australia. He came to the United States in 1945 as Seymour Cohen Fellow at the University of Chicago, and in 1947 joined the faculty of medicine at Johns Hopkins.

Illinois

The newly-created post of director of research in medical education has been filled with the appointment of Dr. GEORGE E. MILLER. Dr. Miller is presently director of house staff education at Buffalo General Hospital and associate professor of medicine at the University of Buffalo School of Medicine. The educational post calls for developing and administering a Commonwealth Fund grant of $112,000 received last November for a two-year pilot study of the process of educating a medical student. The study is expected to result in a permanent center for educational research at the college. Both Dr. Miller's appointment, with the rank of associate professor, and the grant become effective September 1.

The division of biological sciences at the university has received a $693,015 grant from the Department of Health, Education, and Welfare to provide facilities for a world research center investigating problems and mechanisms underlying arthropod-borne diseases. Plans call for construction of a third unit to the new biology building to house a central entomological laboratory known as a "Arthropod-Borne Disease Research Unit." According to university officials, specialists from all over the world will compose the center's staff along with present members of the university faculty.

Dr. PERCIVAL BAILEY, professor of neurology and neurological surgery and clinical professor of psychiatry, will retire September 1, to become full-time director of research at the new Illinois State Psychiatric Institute, Chicago. Dr. Bailey has been a member of the faculty since 1939.

Louisiana

Dr. ABE MIKAL has been named professor and head of the department of obstetrics and gynecology. A graduate of the LSU School of Medicine, Dr. Mikal joined the faculty in 1949 as clinical instructor and was promoted from assistant to associate professor in 1953. He succeeds Dr. MILTON L. MCCALL, who resigned to become medical director of the Elizabeth Steel Magee Hospital as well as chairman of the department of obstetrics and gynecology at the University of Pittsburgh School of Medicine.

Medical Evangelists

A one-year assignment to East Africa for the purpose of testing new drugs in fighting

Books for fall classes . . .

Best & Taylor: PHYSIOLOGICAL BASIS OF MEDICAL PRACTICE
1955 • 1370 pp., 588 figs., 4 col. pls., 6th ed. $12.00

Copenhaver & Johnson: BAILEY'S TEXTBOOK OF HISTOLOGY
1958 • 647 pp., 478 figs., 14th ed. $11.00

GRANT/STEDMAN COMBINATION OFFER

Grant: AN ATLAS OF ANATOMY
1956 • 577 pp., 714 figs., 4th ed., regular price $15.00

Taylor & Taylor: STEDMAN'S MEDICAL DICTIONARY
1957 • 1702 pp., illus., 19th ed., regular price $12.50

SPECIAL COMBINATION PRICE $25.00

Grant: A METHOD OF ANATOMY
1958 • 870 pp., 860 figs., 6th ed. $11.00

Grant: A HANDBOOK FOR DISSECTORS
1959 • approx. 450 pp., 25 figs., spiral-bound, paper covers, 5th ed. ..... $ 5.00

Hamilton, Boyd & Mossman: HUMAN EMBRYOLOGY
1953 • 440 pp., 433 figs., 2nd ed. ..... $ 9.00

Hamilton & Simon: APPLETON, HAMILTON & TCHAPEROFF'S SURFACE AND RADIOLOGICAL ANATOMY
1958 • 365 pp., 416 figs., 4th ed. ..... $ 9.50

Krantz & Carr: PHARMACOLOGIC PRINCIPLES OF MEDICAL PRACTICE
1958 • 1328 pp., 99 figs., 4th ed. $14.00

Miller: TEXTBOOK OF CLINICAL PATHOLOGY
1955 • 1238 pp., 204 figs., 44 pls., 5th ed. $11.00

Perera: MAY'S MANUAL OF DISEASES OF THE EYE
1957 • 424 pp., 378 figs., 33 col. pls., 22nd ed. ..... $ 6.00

Truex: STRONG & ELWYN'S HUMAN NEUROANATOMY
1959 • 500 pp., 363 figs., 31 col. pls., 4th ed. $10.00

Walker, Boyd & Asimov: BIOCHEMISTRY AND HUMAN METABOLISM
1957 • 937 pp., 30 figs., 3rd ed. $12.00

Baltimore 2, Maryland

THE PROPER STUDY OF MEDICINE requires good professors and a good curriculum. In underdeveloped countries medical colleges need help in order to offer broader and better training. If you are a

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the U.S. technical assistance programs can use your services overseas to teach medical education programs. Of particular interest are specialists in biochemistry, internal medicine, pathology and preventive medicine. Send your curriculum vitae to the Public Health Division, Box ME-2, International Cooperation Administration, Washington 25, D.C.

certain tropical diseases will be undertaken by Dr. HOWARD BURNETT, assistant instructor in microbiology. His first stop will be in Addis Ababa, Ethiopia, where he will spend six weeks of tropical medical orientation before going on to Nairobi, Kenya Territory, East Africa. According to CME officials, Burnett's assignment should serve to provide the college with more experience in the field of tropical medicine, and at the same time the participating mission hospitals should benefit from the effect of these drugs on their patients. In addition to testing the new drugs, Dr. Burnett also hopes to train a few of the more promising Africans in methods of simple diagnosis. Earlier this year, Dr. EDWARD WAGNER, CME parasitologist, went to Nairobi and other points in East Africa to establish sites for these clinical trials.

Michigan

Dr. ALBERT C. FURSTENBERG retired July 1, as dean, after a long career at the university. Dr. Furstenberg received the M.D. degree at the U-M in 1915, served in the Medical Corps in World War I, and returned to the campus in 1918 to begin specializing in the field of otolaryngology. In 1932 he rose to the rank of professor and chairman of the department, and in 1935 was appointed dean of the medical school. He is the seventh administrative head of the medical school since its founding in 1850, but only the fourth to carry the title of "dean."

New York University

Dr. LESTER J. EVANS, executive associate of the Commonwealth Fund, has accepted the post of director of New York University's Center for Rehabilitation Services. The appointment becomes effective on November 1. As a member of the Fund's staff for the past 31 years, Dr. Evans has recently been concerned with medical education and is currently participating in a national study of the teaching of biology for the American Institute of Biological Sciences. The Center for Rehabilitation Services was established last year as an all-university coordinating agency designed to "bring into focus the world's most comprehensive program for overcoming human disability," according to President CARROLL V. NEWSOM. The Center's function is to encourage the team approach in utilizing the complete range of medical, technical, and educational disciplines.

Dr. DONALD A. COVALT was elected president of the American Academy of Compensation Medicine at its annual meeting in New York recently. Dr. Covalt is associate director of the Institute of Physical Medicine and Rehabilitation of New York University-Bellevue Medical Center and professor of physical medicine and rehabilitation at NYU College of Medicine. He succeeds Dr. SAMUEL M. PECK of Columbia University College of Physicians and Surgeons.

Oregon

A member of the Dartmouth Medical School faculty has been chosen professor and

head of the division of dermatology at the University of Oregon Medical School. Dr. WALTER C. LOBITZ, Jr. took up his duties in the dermatology division on July 1, succeeding Dr. THOMAS B. FITZPATRICK, who has accepted a similar position at Harvard University Medical School. While at Dartmouth, Dr. Lobitz was professor of dermatology and chief of the department of dermatology at Hitchcock Clinic. Since 1953, he has been director of the dermatology research laboratory at the Hitchcock Foundation for Education and Research.

Pennsylvania

A total of $566,332, to be used toward the construction of the $5,900,000 I. S. Ravdin Institute addition to the hospital of the University of Pennsylvania, was reported raised at the Friends of Dr. Ravdin Victory Dinner held recently at the Bellevue Stratford Hotel. Dr. Ravdin is vice-president for medical development and John Rhea Barton professor of surgery. The 220-bed hospital teaching, research and patient care unit is now under construction. The Institute goal is part of the $7,472,000 total medical center campaign currently being conducted by the university, which also includes the new $1,572,000 residence for students of the Hospital School of Nursing.

Dr. Ravdin was recently appointed to serve a three-year term on the National Advisory Health Council.

The George Morris Piersol Rehabilitation Center was dedicated June 16, at the hospital of the University of Pennsylvania. Named for Dr. PIERSOL, emeritus professor of physical medicine and rehabilitation, and former dean of the Graduate School of Medicine, the $600,000 Center provides the latest types of equipment and facilities for rehabilitation treatment and therapy, according to university sources. Dr. HOWARD A. RUSK, director of physical medicine and rehabilitation at New York University-Bellevue Medical Center, and associate editor of the *New York Times*, spoke at the dedication. The new Center is both a patient service, and a training unit, with comprehensive training programs in physical therapy, occupational therapy, speech therapy, vocational counselling, social services, and psychological testing of physically handicapped persons.

Puerto Rico

Dr. JOSE R. VIVAS has been named dean of the school of medicine, thus filling the vacancy created by the resignation of Dr. E. HAROLD HINMAN on June 6. Dr. Hinman has accepted a position with the Public Health Division of the International Cooperation Administration.

A 1934 graduate of the Medical College of Virginia, Dr. Vivas was director of graduate education at the Walter Reed Hospital in Washington from 1953 to 1957, and since that time has been chief of medicine and director of Gorgas Hospital in the Canal Zone.

Seton Hall

The appointment of Dr. BERNARD A. BRIODY as professor and chairman of the department of microbiology has been announced by Dr. CHARLES A. BROWN, dean. He comes to Seton Hall from Hahnemann Medical College where he has been professor of microbiology since 1956. Dr. Briody received his bachelor's degree from Lehigh University and his doctorate from the Yale University School of Medicine. From 1946 to 1947 he was a Fellow in Medical Sciences of the National Research Council at the Walter and Eliza Hall Institute of Medical Research at the University of Melbourne in Australia. He has also served on the faculty of medicine at Yale University.

Wayne State

A Wayne State University television series, "Psychiatry in Medicine" made its debut June 26, over Channel 56. Planned by the department of psychiatry of the WSU College of Medicine, in cooperation with its main clinical teaching facility of Detroit Receiving Hospital's department of psychiatry, the ten-week series is designed to present principles of psychiatry for the medical practitioner. All of the programs will pre-

sent basic yet practical information which can be applied by the medical practitioner, no matter what his specialty might be.

Wisconsin

A grant of $100,000 from the Rockefeller Foundation has been received by the Medical Center for the expansion and development of the medical genetics program. The funds will permit the department to add new members to its staff and to broaden the program of teaching and research. Additional apparatus and equipment for these quarters will be provided by the grant, which will be housed in a new addition now under construction.

Yale

The Yale School of Medicine and the Grace-New Haven Community Hospital, affiliated since 1826, announced the formal incorporation of the Yale-New Haven Medical Center aimed at a major expansion of the patient care facilities of its university hospital services. Elected first president of the new Medical Center Corporation is CHARLES S. GAGE, treasurer of Yale University.

Chief objective is to broaden the efforts of the medical center in acquainting more community physicians and patients with advanced medical and surgical treatments, according to Mr. Gage. The formal incorporation will aid the medical center in seeking support for extensive research work being conducted to develop new methods of treatment for patients inasmuch as the cost of such research cannot be borne by the medical school itself, nor by the hospital. Thus, these costs can be met through the cooperative efforts of both institutions.

ITEMS OF CURRENT INTEREST

Commonwealth Fund Aids Study

The Commonwealth Fund of New York has granted to the Board of Regents of the Universities and State College of Arizona, $135,000 for a study to determine the need for a medical school in Arizona. If a need is revealed, recommendations would then be made as to the location of the medical school, the type of school and length of course it should offer. The study, which is estimated to take a year to complete, will be organized and conducted as a purely objective project and will employ consultants in many fields to review staff work and policy judgments. The program will include several advisory boards of governmental, lay, and medical people to meet with the staff and to discuss with them fully all aspects of the study.

Josiah Macy, Jr. Foundation Announces Grants

Unrestricted grants totaling $1,650,000 to 11 private medical schools in support of their teaching-research staff was announced by the Josiah Macy, Jr. Foundation. The action was taken in recognition of the fact that the adequate staffing of medical schools is the crucial problem of the national program of medical research and teaching. Aware that there are more funds for medical research than there are facilities and permanent staff to carry out the programs, the Foundation believes that means must be found to stabilize and strengthen the hard core of the medical school faculties, particularly in the basic medical sciences. Thus, it has made unrestricted grants of $50,000 per annum for a three-year period to each of the following medical schools: Yale, University of Chicago, Johns Hopkins, Harvard, Washington University, Columbia, Cornell, New York University, Rochester, Vanderbilt, and Duke.

Roswell Park Memorial Institute Offering Fellowships

The Roswell Park Memorial Institute, Division of the University of Buffalo Graduate School, has announced that applications will be accepted for fellowships from qualified students desiring to work toward the Ph.D. degree in the following fields: cytol-

ogy, genetics, biochemistry, immunochemistry, biophysics, radiation biology, microbiology, physiology, endocrinology, pharmacology, chemotherapy, experimental pathology, experimental oncology, and experimental hematology. The basic stipend will be $1,600 to $3,000 per annum.

Applications, enclosing university transcripts, curriculum vitae and a list of references should be sent to Dr. Julian L. Ambrus, Graduate Fellowships Program, Roswell Park Memorial Institute, 666 Elm Street, Buffalo 3, New York.

American Goiter Association Offering Prize

The Van Meter Prize Award of $300.00 is again being offered by the American Goiter Association to the essayist submitting the best manuscript of original and unpublished work concerning "goiter—especially its basic cause." The studies so submitted may relate to any aspect of the thyroid gland in all of its functions in health and disease. The Award will be made at the Fourth International Goiter Conference in London, England, July 5–9, 1960, where a place on the program will be reserved for the winning essayist if he can attend the meeting.

Further information may be obtained by writing to Dr. John C. McClintock, 149½ Washington Avenue, Albany 10, N.Y.

Awards to be Offered for Research in Urology

The American Urological Association is offering an annual award of $1,000 (first prize $500, second prize $300, and third prize $200) for essays on the result of some clinical or laboratory research in urology. Competition is limited to urologists who have been graduated not more than ten years, and to hospital interns and residents doing research work in urology.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association to be held at the Palmer House, Chicago, Ill., May 16–19, 1960. For further information, contact William P. Didusch, 1120 North Charles St., Baltimore, Md.

Fellowship to Aid Australian Physician

A physician from Australia will benefit from the creation of a fellowship for postgraduate training in physical medicine and rehabilitation in the United States. The Frank H. Rowe Memorial Fellowship in Rehabilitation is being offered by the World Rehabilitation Fund, Inc., in cooperation with the Australian Advisory Council for the Physically Handicapped, the International Society for the Welfare of Cripples, and the Smith, Kline and French Foundation.

Created to honor the late Frank H. Rowe, C.B.E., Director-General of Social Services, Commonwealth of Australia, for his contribution to the development of rehabilitation services for the physically handicapped, the fellowship provides for a year's training at the Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center.

Consultant Service Established

To make latest knowledge and new techniques in nuclear medicine available to sponsors and potential sponsors of diagnostic, treatment, and research programs, a group of specialists in the field have formed Medical Nuclear Consultants, Inc. Headquarters will be in Washington, D.C., with offices in New York City and Montreal.

Services will be made available to medical centers, hospitals, private practitioners and other program sponsors on either continuing retainer or specific assignment basis, according to Stanley H. Clark, radiation physicist and president of the group.

Consultants and advisors to the group include specialists in various aspects of medical nuclear programs, including planning, construction, supply, training, financing and evaluation.

The group's services will be offered to the largest, most varied users of isotopes, reactors and accelerators as well as to those contemplating installation of the smallest units.

PERSONNEL EXCHANGE

Faculty Vacancies

PHYSIOLOGIST OR PHARMACOLOGIST: Teaching and research position in medical school. N.Y.C. area. M.D. or Ph.D. required. Training in neurophysiology desired. Salary based on qualifications and experience. Address: V-75.

PROFESSOR OF PREVENTIVE MEDICINE: The University of Alberta invites applications for the position of professor and head of the department of preventive medicine in the faculty of medicine. Duties will include administration of the department, teaching of graduate and undergraduate students and a program of research. Salary will be $10,000 per annum with consulting privileges. Interested applicants should send a complete curriculum vitae, names of three referees, and a recent photograph to the office of the Dean of Medicine, University of Alberta, Edmonton, Alberta.

PEDIATRICIANS: Two or 3 part-time teaching positions —may use remainder of time for private practice. Address: F. G. Gillick, M.D., Creighton University School of Medicine, Omaha 2, Nebraska.

PSYCHIATRISTS: Full-time and part-time teaching positions. Need coordinator of teaching grant program. Would function under departmental director. Address: F. G. Gillick, M.D., Creighton University School of Medicine, Omaha 2, Nebraska.

ASSISTANT PROFESSOR OF PREVENTIVE MEDICINE: Full-time appointment in department of preventive medicine with teaching and research opportunity, including comprehensive medical care teaching. Must have M.P.H. degree. Address: V-76.

FELLOW IN VIRUS RESEARCH: M.D., with at least one year of residency in pediatrics for training in diagnostic virology. Duties include approximately three hours of ward rounds, and five hours of training and research in the virus laboratory. The individual is expected to direct and consolidate activities in the clinical and research areas. Salary $6,000 per annum. Position available for 2-year tenure. Apply Dr. H. A. Wenner, University of Kansas Medical Center, Kansas City, Kansas.

IMMUNOCHEMIST OR BIOCHEMIST: Must be interested in field of infectious diseases. Activities include studies on immune mechanisms and on the biochemistry of virus infections. Full-time research position. Salary open; minimal $8,000. Apply H. A. Wenner, M.D., Section for Virus Research, University of Kansas School of Medicine Kansas City, Kansas

PSYCHIATRISTS: Newly organized department of psychiatry in east coast medical school needs full-time psychiatrists for research and teaching. Rank and salary are dependent on experience and qualifications. Address: V-77.

DIRECTOR OF MEDICAL EDUCATION: for new 350-bed hospital. New position. Internal medicine specialist preferred for full-time position. Beginning salary about $15,000 per year. Address inquiries to: Sister Administrator, Providence Hospital, Washington 17, D.C.

PHARMACOLOGIST: The University of Alberta invites applications for the position of Associate Professor of Pharmacology, effective not later than September 1, 1959, at a minimum salary of $8,000 per annum, with annual increments. Duties include undergraduate and graduate teaching and a program of research. Applicants possessing a medical degree, in addition to qualifications in pharmacology, will be given preference. Applications should include a recent photograph or snapshot, a curriculum vitae, and the names of three references, and should be sent to the Dean of Medicine, University of Alberta, Edmonton, Alberta, Canada.

PSYCHIATRIC SOCIAL WORKER: Position open on new child psychiatry inpatient service to be opened on July 1. Research and teaching will be emphasized in developing program. Preferred qualifications are Ph.D. degree or doctoral candidate with solid clinical grounding in psychiatric social work. Master's degree in Social Work with 5 years psychiatric clinical experience will be considered. Position carries academic appointment. Send curriculum vitae with application. Address: V-78.

PHARMACOLOGIST: Full-time appointment in department of pharmacology for assistant professor of pharmacology. Ph.D. or M.D., preferably the latter, and previous training in pharmacology required. Salary $7,000 or higher according to qualifications. Interested candidates should send a complete curriculum vitae and recent photograph to Dr. M. F. Murnaghan, Professor and Head, Department of Pharmacology, University of Ottawa, Ottawa 2, Ontario, Canada.

ASSISTANT IN PSYCHIATRY: Research assistant wanted for psychosomatic project from July 1, 1959. Associated university affiliation. Salary according to qualifications up to $5,700. Apply to Professor R. B. Sloane, Department of Psychiatry, Queen's University, Kingston, Ontario, Canada.

ENDOCRINOLOGIST-BIOCHEMIST: M.D. to become director of biochemistry laboratory at a 400-bed general hospital with medical school faculty appointment. Duties to include teaching; research will be encouraged. Large Eastern city. Address: V-79.

To aid in solution of the problem of faculty vacancies, MEDICAL EDUCATION will list persons and positions available, as a free service. The school department or person may have the option of being identified in these columns or of being assigned a key number for each position listed. Mail addressed to key numbers will be forwarded to the person or department listing the request.

Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 2530 Ridge Avenue, Evanston, Illinois, not later than the 10th of the month which precedes the month in which the listings will appear.

Personnel Available

PEDIATRICIAN: MPH, desires teaching and/or research position with clinical emphasis. Address: A-386.

ANATOMIST: Position wanted in university anatomy department in U.S., by married male with family. British medical school degree in medicine, extensive clinical experience, and recent teaching and research experience in anatomy in England. Good references available. Available to attend interviews in the U.S. now. Address: A-387.

OBSTETRICIAN-GYNECOLOGIST: Foreign physician, age 30, three years residency in obstetrics and gynecology in teaching hospitals of U.S.A., with good command of English, desires position as preceptor in Ob-Gyn., starting July 1959. Address: A-389.

UROLOGIST: Foreign physician, age 30, one year internship, three years in urology and one in urological research in teaching hospitals of U.S.A. Desires position as preceptor in urology, starting July 1959. Good command of English. Address: A-390.

THORACIC SURGEON: M.D. 1947, University of Istanbul. Served an internship in surgery (1954–55) Montana Deaconess Hospital, Great Falls, Montana. Served as Fellow in Thoracic Surgery (sponsored by American College of Chest Physicians) Knoxville, Tenn. Presently in charge of thoracic surgery department at Armenian Hospital, Istanbul. Desires teaching position in American medical school. Address: A-391.

PATHOLOGIST: Age 35, married. Certified PA 1955. Academic background and three years teaching experience. Wishes to relocate in West. Will consider part-time or full-time teaching appointment. Especially interested in surgical pathology. Address: A-392.

OTOLARYNGOLOGIST and HEAD and NECK SURGEON: Age 32; board eligible. University of the Philippines graduate. Completed five and one half years' training in eastern medical centers (3 years otolaryngology, 6 months more bronchoesophagology, and 2 years general and head and neck surgery). Desires one year fellowship, or assistantship, or academic position. Available August or October, 1959. Address: A-393.

BIOCHEMIST: Ph.D., age 30. Assistant professor of biochemistry desires academic position. Five years medical and graduate teaching experience. Membership in national societies, honors, grants, graduate students. Fifteen full-length publications. Research interests: enzymology, microbial metabolism and protein metabolism. Available July 1, 1959. Address: A-394.

PHYSIOLOGIST-PHARMACOLOGIST: Ph.D., 1954. Male, married, with family. Presently teaching physiology in dental school. Desires teaching position with research opportunities in physiology or pharmacology department. Address: A-395.

PATHOLOGIST-BACTERIOLOGIST: M.S., B.S. (London University); M.R.C.S. (England) L.R.C.P. (London). Age 42, family; registered with British General Medical Council. Five years experience in general and clinical pathology and bacteriology, London, England. Completing 3-year contract in Jamaica. Desires academic appointment in U.S., preferably in the South. Available May, 1959. Address: A-397.

VIROLOGIST-PATHOLOGIST: Excellent experience and background in infectious diseases, human and animal viruses. Broad interests include cancer and pathogenesis. D.V.M.–Ph.D., age 34. Presently in industry. Desires research and teaching position. Would consider Senior Fellowship. Address: A-398.

INTERNIST-HEMATOLOGIST: Age 36, Board certified, with five years academic-type practice and previous research experience, seeks academic position in moderate sized city. Address: A-399.

PSYCHIATRIST: Female, age 26, completing final year of residency in June 1959. Training includes two years in an active university program and participation in family studies in schizophrenia. Analytically (Sullivanian) oriented. Special interests: Psychotherapy with schizophrenics, teaching professionals and non-professionals, liberal arts. Seeks position teaching in medical school with time for limited private practice. Interested in small university community. Address: A-400.

PHARMACOLOGIST: Ph.D., 1955; married, 3 children. Presently teaching pharmacology to medical students. Publications. Research interests: drug metabolism and toxicology. Desires teaching appointment in medical school that would provide opportunity for completion of courses leading to M.D. degree. Would continue teaching pharmacology after receiving the degree. Available August 1. Address: A-401.

INTERNIST: M.D. Age 33. Currently on faculty of eastern medical school. Experience in private practice and industrial medicine. Eight months experience and training in psychiatry. Desires faculty appointment with opportunity for clinical investigation in cardio-vascular diseases, as well as teaching general medicine, in teaching hospital. Address: A-402.

PATHOLOGIST: Wishes to join Pathology Department to contribute to, or help develop, a strong, well balanced teaching program with emphasis on best utilization of materials, methods and communication with students. Also interest and experience in basic research. Previous experience in undergraduate, graduate, and medical teaching, including several years in Anatomy (Ph.D.), followed by M.D., internship and specialization in Pathologic Anatomy (will complete July '59). Age 38. Desires permanent position with good opportunities in primary fields of interest. Address: A-403.

VETERINARIAN: Experienced in microbiological techniques; presently at a medical school. Desires position as director of experimental animal laboratory. Address: A-404.

MICROBIOLOGIST-VIROLOGIST: Ph.D., presently on university faculty. Five years experience in virology and tissue culture publications. Desires academic position involving full-time research or research and teaching. Address: A-405.

ORTHOPAEDIC SURGEON: 38. Wants appointment in U.S.A. or Canada. Main interest in Traumatic Surgery and Research. Now holding consultant post at well known British Hospital. Mastership in Surgery and Fellow of the Royal College of Surgeons. Address: A-406.

PSYCHIATRIST-NEUROPHYSIOLOGIST: M.D. Certified in psychiatry and as a mental hospital administrator. FAPA and FSPA. No formal training in neurophysiology but using some of its principles with gratifying results in coping with the manifold problems of psychosomatic medicine. Desires full-time career teaching position in medical school with opportunities for teaching psychiatry; for learning clinical neurophysiology well enough to instruct; and for carrying on more intensive course of clinical investigation. Address: A-407.

PHYSIOLOGIST: Ph.D., 1957, age 31, married, one child. Research in cardiovascular-renal physiology. Strong background in hypertension. Eleven publications. Experience in teaching medical, dental, and pharmacy students. Desires research position with or without teaching responsibilities. Address: A-408.

MICROBIOLOGIST: Ph.D., Sept., 1959. Training in all fields of basic microbiology, with research in microbial metabolism. Desires faculty position with teaching and research opportunities in a university or medical school. Address: A-409.

PHYSIOLOGIST-ENDOCRINOLOGIST: Ph.D., age 36. Training and background in endocrine, cellular, mammalian and zoological physiology. Presently assistant professor engaged in teaching and research in endocrinology and general physiology. Formerly research associate in biochemistry. Desires academic and/or research position. Address: A-410.

ANATOMIST: Age 34, married. Ph.D. Anatomy 1957. Publications. Teaching experience in Eastern medical school. Desires teaching position with opportunity for research. Address: A-411.

INTERNIST: Age 35, married. Ten years training in internal medicine and hematology. Teaching experience and research in field of clinical hematology, B_{12} metabolism, radioactive uptakes, experimental hematology, and enzyme studies. Desires teaching position with opportunity for research. Address: A-412.

SURGEON: Age 35, native of Bombay, India. In U.S. since 1952. F.C.P.S. (Bombay), F.R.C.S.E. (Edinburgh). Completed residency training in general surgery in U.S. and successfully taken Part I examination of American Board of Surgery. Desires full-time position in teaching and successfully taken Part I examination of American Board of Surgery. Desires full-time position in teaching and/or research in American medical school. Presently senior resident in surgery in Eastern hospital. Experience in plastic surgery as well as urology and anesthesiology. Address: A-413.

UROLOGIST: University trained, finished 1956. Seeking full-time academic post: teaching, research, and clinical work. Presently in private practice and part-time university teaching. Address: A-414.

GROSS ANATOMIST: D.S.D., Ph.D. Ten years teaching experience in medical school; previously taught in dental school. Clinical experience in plastic and oral surgery. Research interests and publications: homotransplantation of tissues. Desires academic position in medical or dental school with research facilities. Will consider research associateship with plastic surgery department. Address: A-415.

MICROBIOLOGIST: Ph.D. Seeking position on medical school faculty in Southeast or Southwest. Many years experience and supervision in clinical microbiology. Six years on medical school faculty. Qualified in parasitology, virology and public health. Address: A-416.

INTERNIST: Age 31, now completing third year of residency in internal medicine. Desires position as director of medical education in teaching hospital. Well trained in basic patho-physiology and have assisted director of medical education at current hospital. Particularly interested in setting up and conducting a new program. Address: A-417.

SURGEON: Age 33. Certified in surgery and thoracic surgery. University trained with research background. Presently holding part-time university teaching appointment. Desires full-time academic appointment in surgery, preferably with additional duties as assistant dean working with curriculum and postgraduate training program. Address: A-418.

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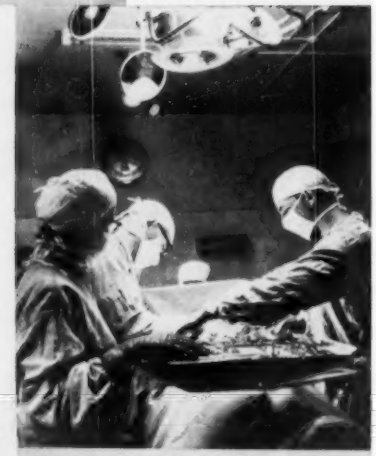

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